CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 6.

Subject:

Work Session on Proposed 2008 Legislative Program

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

None

Summary of Information:

Attached are our various items for the Board to consider for inclusion in the county's 2008 legislative program.

Preparer: Mary Ann Curtin Title: Director, Intergovernmental Relations

Attachments: ■ Yes ☐ No

#000001

Work Session

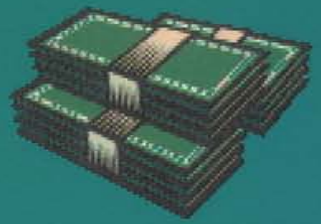
2008 Legislative Program

October 10, 2007

200000

Key Challenges in the 2008 General Assembly

- Election Outcome
- Difficult State Budget Outlook



- State Revenues are down
- New Initiatives / Reforms will be introduced

000003

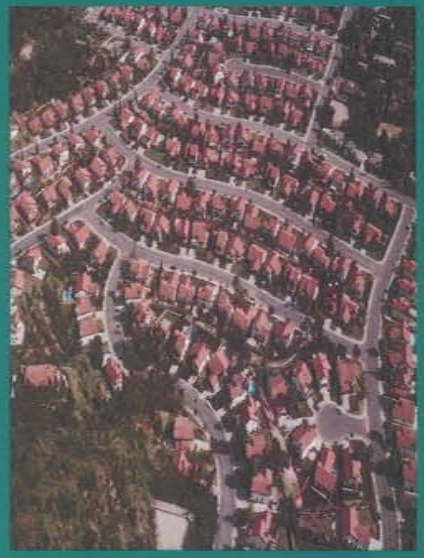
Key Challenges Facing Chesterfield County

Transportation

- Continue to seek opportunities for additional funding.
- Protect cash proffer and road impact fee authority.
- Prevent cost-shifting to localities
- Oppose additional unfunded state mandates

Key Challenges Facing Chesterfield County

Growth



- Protect land use and zoning authority
- Continue to seek adequate transportation funding
- Protect cash proffer and road impact fee authority

Key Challenges Facing Chesterfield County

Financial Strength

- Support a $358,000 state budget appropriation for the Dual Treatment Track Program
- Support review of staffing standards for sheriffs and other constitutional officers.
- Oppose changes to the jail inmate phone commission
- Protect local revenues
- Support Riverside Regional Jail receiving Compensation Board funding for Pre-Release Center Personnel (corrects a state error)

Key Challenges Facing Chesterfield County

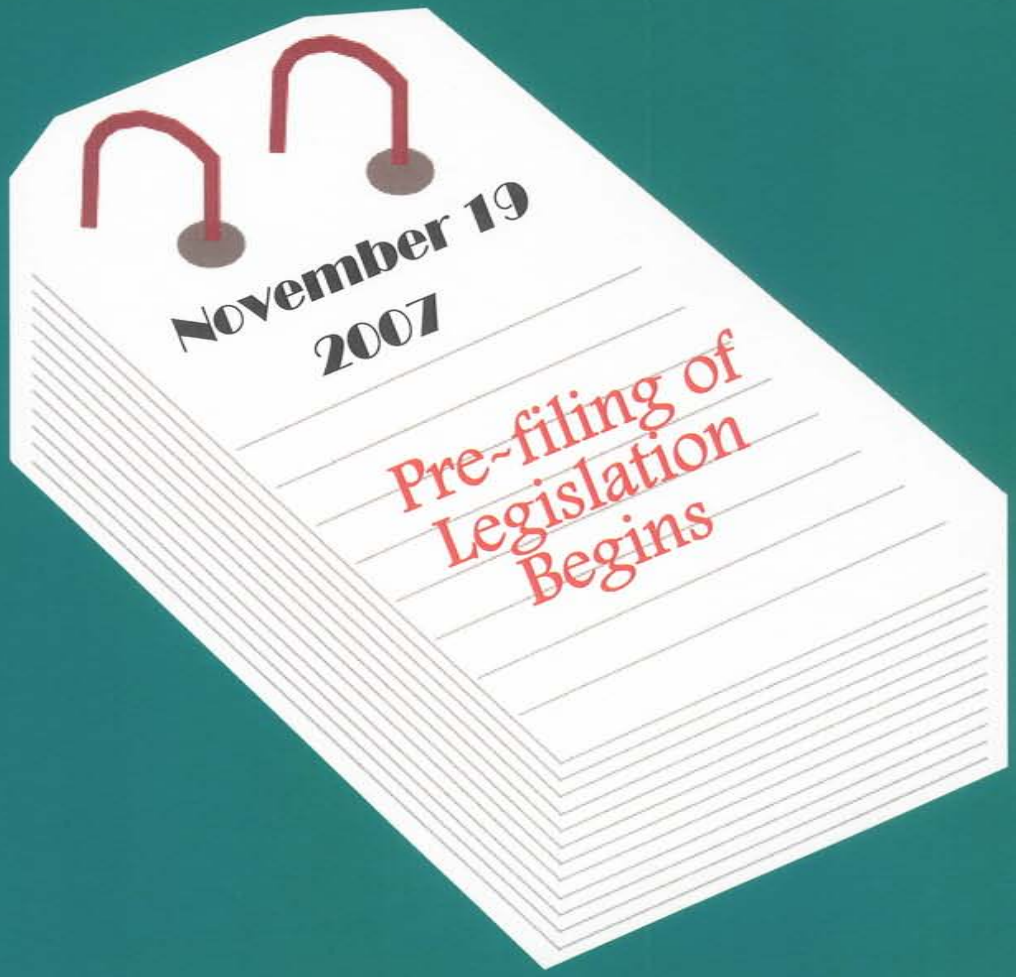
Maintaining High Quality of Life – Safety and Security

- Support legislation on illegal immigration that assists local governments in addressing community concerns

- Support creation of a DUI Court for Chesterfield / Colonial Heights

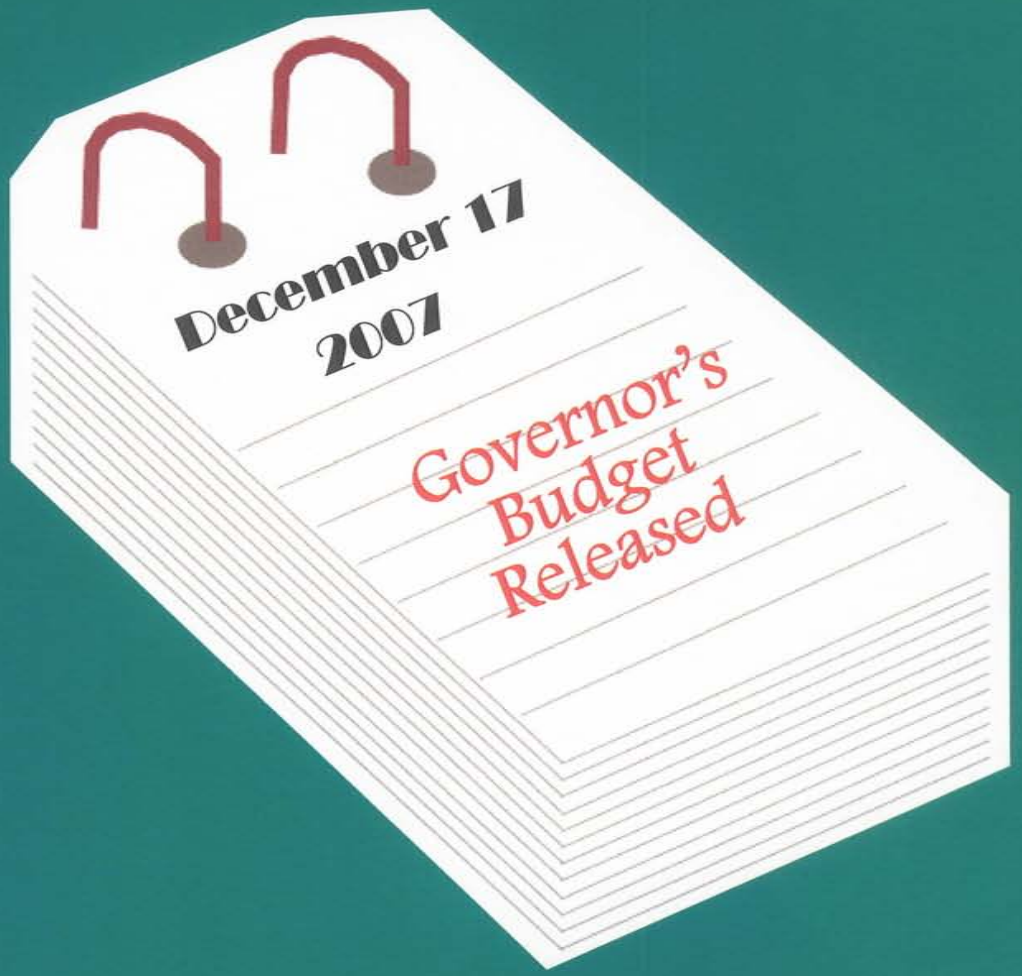
Key Dates

Key Dates

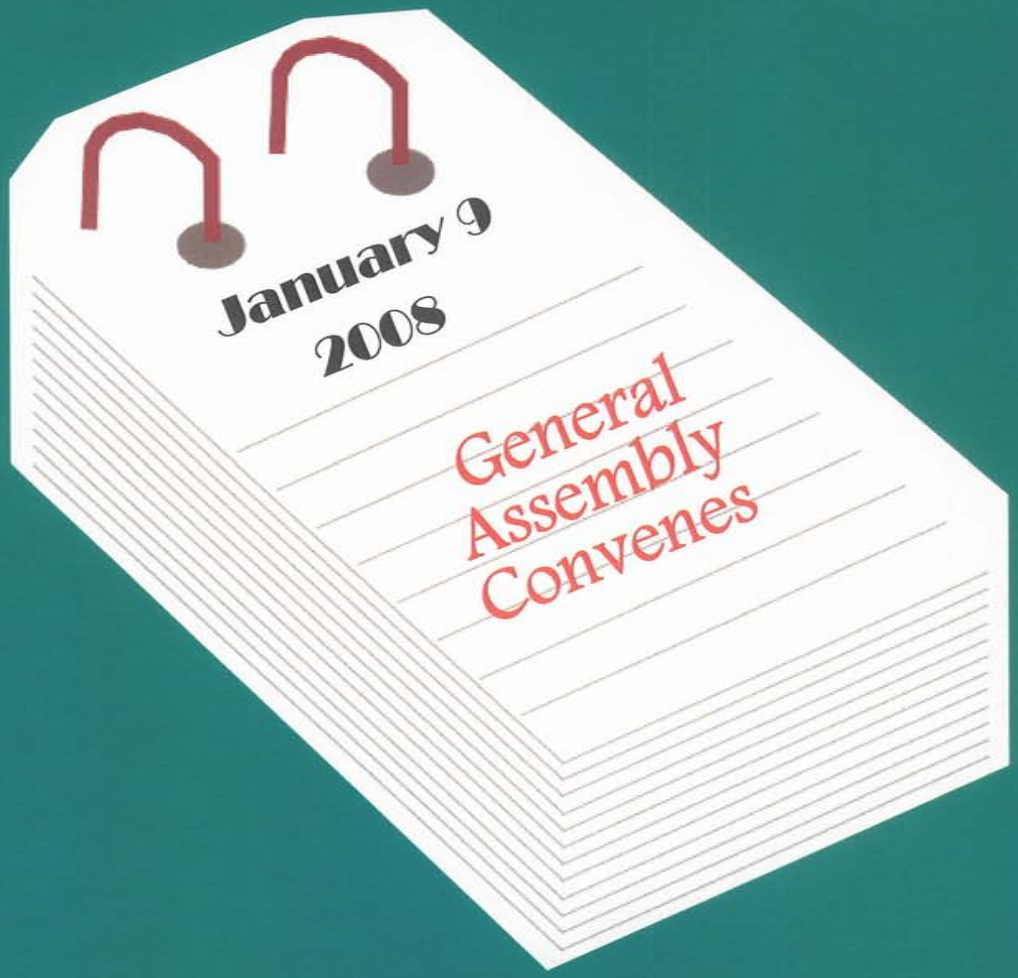


600009

Key Dates



Key Dates



000011

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.A.1.

Subject:

Nominations to the Chesterfield Emergency Planning Committee

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

The staff requests that the Board approve the nomination of **Ms. Karen C. Carr**, Chesterfield Police Department for the Chesterfield Emergency Planning Committee.

Summary of Information:

The intent of the Superfund Amendment and Reauthorization Act of 1986 is for the local community to work with first responders, to create a working plan that outlines emergency response to natural disasters and hazardous materials situations, and to coordinate the Community's Right-to-know Act. The Chesterfield Emergency Planning Committee is authorized to function under this Act.

The Act specifies that the Governor of each state shall appoint members to local emergency planning committees and shall supervise and coordinate activities of such committees. Accordingly, the Board of Supervisors' nomination will be forwarded to the Governor for official appointment.

Preparer: Paul W. Mauger Title: Fire Chief

Attachments: ■ Yes ☐ No

000012

Chesterfield County, Virginia

Memorandum

DATE: AUGUST 10, 2007

TO: THE HONORABLE BOARD OF SUPERVISORS

FROM: PAUL W. MAUGER, CHIEF
CHESTERFIELD FIRE AND EMS

SUBJECT: CHESTERFIELD EMERGENCY PLANNING COMMITTEE

The following individuals have resigned from the Chesterfield Emergency Planning Committee during the 2007/2008 terms:

Earl Little, Community Group
Dennis Lacey, Community Group
Carol Smithson, Hospitals

Please consider the following nominees for the 2007/2008 Chesterfield Emergency Planning Committee:

Karen C. Carr, Chesterfield Police

PWM:bb

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.A.2.

Subject:

Nominations/Appointments to the Youth Services Citizen Board

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Nominate/appoint members to serve on the Youth Services Citizen Board.

Summary of Information:
The purpose of the Youth Services Citizen Board (YSCB) is to advise the Board of Supervisors regarding planning and policies affecting youth development and to provide a community forum to focus on youth issues.

Matoaca District
Supervisor Humphrey recommends that the Board nominate and appoint **Kellan Latif,** a student from Manchester High School, to the Youth Services Citizen Board for a term from July 1, 2007 through June 30, 2008.

Ms. Latif meets all eligibility requirements to fill the vacancies and has indicated her willingness to serve.

Under existing Rules of Procedure, appointments to boards and committees are nominated at one meeting and appointed at the subsequent meeting unless the Rules of Procedure are suspended by a unanimous vote of the Board members present. Nominees are voted on in the order in which they are nominated.

Preparer: Jana D. Carter Title: Director, Juvenile Services

Attachments: ☐ Yes ■ No

000014

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.1.

Subject:

Acceptance of a Grant Awarded by the United States Department of Justice, Office of Community Oriented Policing for the 2007 Secure Our Schools Program

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Authorize the Police Department to accept and appropriate the award from the U. S. Department of Justice, Office of Community Oriented Policing 2007 Secure Our Schools grant program in the amount of $282,904 and authorize the County Administrator to execute all documents.

Summary of Information:

The Chesterfield County Police Department has been awarded a $282,904 federal grant from the U. S. Department of Justice, Office of Community Oriented Policing Grant Program. The funding will be used to purchase security equipment for Chesterfield County Public Schools. The required $282,903 cash match has been identified by the Chesterfield County Public School System and will be supported by schools per the application agreement.

Preparer: Colonel Thierry G. Dupuis Title: Chief of Police

Attachments: ☐ Yes ■ No

000015

Meeting Date: October 10, 2007

Budget and Management Comments:

This item requests that the Board accept and appropriate funds for a U.S. Department of Justice, Office of Community Oriented Policing, for the 2007 Secure Our Schools program grant in the amount of $565,807.

The grant will be used to purchase security equipment for Chesterfield County Public Schools. The required $282,903 local cash match will be paid for by Schools.

Preparer: Allan Carmody Title: Director, Budget and Management

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.2.a.

Subject:

Resolution Recognizing Judith A. Davis, Chesterfield-Colonial Heights Department of Social Services, Upon Her Retirement

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Staff requests the Board adopt the attached resolution.

Summary of Information:

Staff requests the Board adopt the attached resolution recognizing Judith A. Davis for 20 years of service to Chesterfield/Colonial Heights Department of Social Services.

Preparer: Sarah C. Snead Title: Director-Social Services

Attachments: ■ Yes ☐ No

000017

WHEREAS, Mrs. Judith A. Davis began her public service with Chesterfield County as an eligibility worker in the Department of Social Services in June 1987, having come to the county with several years of experience with Petersburg Social Services; and

WHEREAS, in July 1994, Mrs. Davis was promoted to senior eligibility worker; and

WHEREAS, Mrs. Davis was a member of the Application Benefit Delivery Project (ADAPT) implementation process for the Chesterfield-Colonial Heights Department of Social Services; and

WHEREAS, Mrs. Davis served on the department's Quality Council in 1999; and

WHEREAS, Mrs. Davis has provided the Chesterfield-Colonial Heights Department of Social Services with 20 years of loyal and dedicated service; and

WHEREAS, Mrs. Davis has been a dedicated and loyal advocate for the citizens of Chesterfield County and the City of Colonial Heights.

NOW, THEREFORE, BE IT RESOLVED that the Chesterfield County Board of Supervisors recognizes Mrs. Judith A. Davis, and extends on behalf of its members and the citizens of Chesterfield County, appreciation for her service to the county, congratulations upon her retirement, and best wishes for a long and happy retirement.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.2.b.

Subject:

Resolution Recognizing Ms. Marlene K. Pascarella, Treasurer's Office, Upon Her Retirement

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Adoption of attached resolution.

Summary of Information:

Staff requests the Board adopt the attached resolution recognizing Ms. Marlene K. Pascarella of the Treasurer's Office for 22 years of dedicated service to Chesterfield County.

Preparer: Richard A. Cordle Title: Treasurer

Attachments: ■ Yes ☐ No

000019

RECOGNIZING MRS. MARLENE K. PASCARELLA UPON HER RETIREMENT

WHEREAS, Mrs. Marlene K. Pascarella retired effective October 1, 2007 after providing over 22 years of dedicated and faithful service to Chesterfield County; and

WHEREAS, Mrs. Pascarella began her tenure with the Chesterfield County Treasurer's Office on January 7, 1985 as a part-time account clerk; and

WHEREAS, Mrs. Pascarella was promoted to full-time employment with the Treasurer's Office on September 16, 1985 and has been promoted to multiple positions throughout her years in the office, most recently to the position of Principal Account Clerk; and

WHEREAS, Mrs. Pascarella has been instrumental during her career in helping implement accounting practices in the Treasurer's Office of the highest integrity; and

WHEREAS, Mrs. Pascarella has consistently performed over and above her normal responsibilities, assisting the office when decal issuance and tax collections were offered off-site; and

WHEREAS, Mrs. Pascarella has faithfully and effectively discharged her duties in each and every capacity with proficiency, passion and uncompromising commitment to world-class customer service; and

WHEREAS, Mrs. Pascarella will be tremendously missed for the quality and caliber of her commitment and performance to the Treasurer's Office and to our citizens.

NOW, THEREFORE, BE IT RESOLVED that the Chesterfield County Board of Supervisors recognizes Mrs. Marlene K. Pascarella and extends its appreciation for her 22 years of dedicated service to the county, congratulations upon her retirement, and best wishes for a long and happy retirement.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.3.

Subject:

Award a Contract for the Construction of Phase II of the Fire Logistics Facility to Sun Bay Contracting, Incorporated in the Amount of $3,400,000

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Authorize the County Administrator to execute a contract with Sun Bay Contracting, Inc. in the amount of $3,400,000 for the construction of Phase II of the Fire Logistics Facility; transfer $550,000 from projects nearing completion; and transfer $150,000 from the County's Reserve for Capital Projects.

Summary of Information:

Sun Bay Contracting, Inc. submitted the low bid out of three responsive bids for construction of Phase II of the Fire Logistics Facility project. Phase I, completed summer 2007, consisted of additional parking and improved access, site lighting, utility lines and a new perimeter security fence around the existing industrial support area. This contract for Phase II will provide the construction of the building to complete the project.

Preparer: Robert C. Key Title: Acting Director of General Services

Attachments: ☐ Yes ■ No

000021

Meeting Date: October 10, 2007

Budget and Management Comments:

This item requests that the Board award the construction contract to Sun Bay Contracting in the amount of $3.4 million to construct the Fire Logistics Facility. The facility will replace eight storage buildings and five equipment repair shops that are located within fire stations and free up needed space at the fire stations. This centralized warehouse will facilitate delivery of fire fighting and EMS equipment and supplies and expedite the repair of equipment.

This facility was first included in the capital improvement program in FY2005 and was funded for construction over FY2007 and FY2008 for a total revised cost of $4.769 million for both phase one (site development) and phase two (building construction). Construction bids exceed the remaining available funding and an additional $550,000 is requested to be transferred from projects that are either finished or nearing completion ($400,000 from the CADS/Mobile Data Project, and $150,000 from the Community Development Building capital project). Transfer of an additional $150,000 from the County's Reserve for Capital Projects is also requested to cover furniture and equipment needs for the building project. The requested additional transfers (totaling $700,000) will bring the total revised budget for this project to $5.469 million.

The balance in the County's Reserve for Capital Projects is $1,729,798; transfer of $150,000 will leave a balance of $1,579,798.

Preparer: Allan M. Carmody Title: Director, Budget and Management

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.4.

Subject:

Conveyance of an Easement to Southside Electric Cooperative

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Authorize the Chairman of the Board of Supervisors and the County Administrator to execute an easement agreement with Southside Electric Cooperative for underground cable to provide service to the new River Road Pump Station.

Summary of Information:

Staff recommends that the Board of Supervisors authorize the Chairman of the Board of Supervisors and the County Administrator to execute an easement agreement with Southside Electric Cooperative for underground cable to provide service to the new River Road Pump Station.

District: Matoaca

Preparer: John W. Harmon Title: Right of Way Manager

Attachments: ■ Yes ☐ No

000023

VICINITY SKETCH

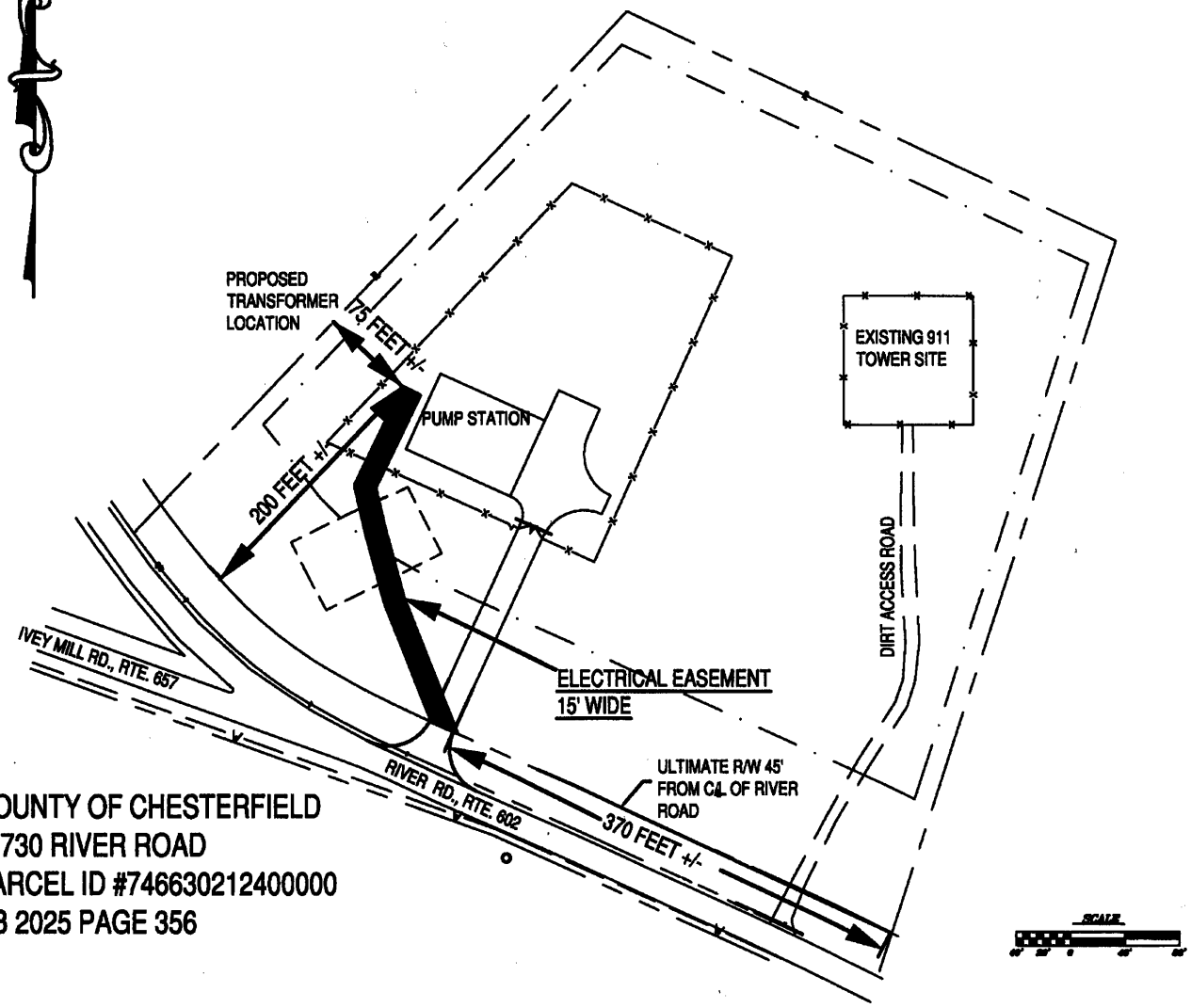
CONVEYANCE OF AN EASEMENT TO SOUTHSIDE ELECTRIC COOPERATIVE

Chesterfield County Department of Utilities

N
W
E
S

1 inch equals 416.67 feet

000024



COUNTY OF CHESTERFIELD
11730 RIVER ROAD
PARCEL ID #746630212400000
DB 2025 PAGE 356

Plat to Accompany Right-of-Way Agreement SOUTHSIDE ELECTRIC CO Crewe, Virginia	DATE: AUG 31, 2007 SCALE: SHOWN: DESIGNED: ACW DRAWN: TEP: CHECKED: TEP:
RIVER_ROAD_PUMP_STATION CHESTERFIRLD_COUNTY,VA	OFFICE
UNDERGROUND ELECTRICAL SERVICE 15' UTILITY EASEMENT	DATE 1 OF 1 SHEETS

000025

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.5.

Subject:

Approval of Utility Contract for Belfair Townhouses, Contract Number 07-0145

County Administrator's Comments:

County Administrator: _____

Board Action Requested: Staff recommends that the Board of Supervisors approve this contract and authorize the County Administrator to execute any necessary documents.

Summary of Information:

This project includes replacing 200 L.F. of existing 16" water line, whereby staff has requested that 54 L.F. of the total be considered as additional work as defined by the ordinance. The additional work reconstructs a portion of the existing 16" water line that is exposed in a creek bed. In accordance with the ordinance, the Developer is entitled to refunds for the construction cost of the additional work.

Developer: Belfair Associates, LLC
Contractor: Perkinson Construction Company

Contract Amount:

Estimated County Cost for Additional Work	$25,271.64
Estimated Developer Cost	$155,413.25
Estimated Total	$180,684.89
Code: (Cash Refund - Additional Work)	5B-572WO-E4C

District: Dale

Preparer: William O. Wright Title: Assistant Director of Utilities

Attachments: ■ Yes ☐ No

000026

Meeting Date: October 10, 2007

Budget and Management Comments:

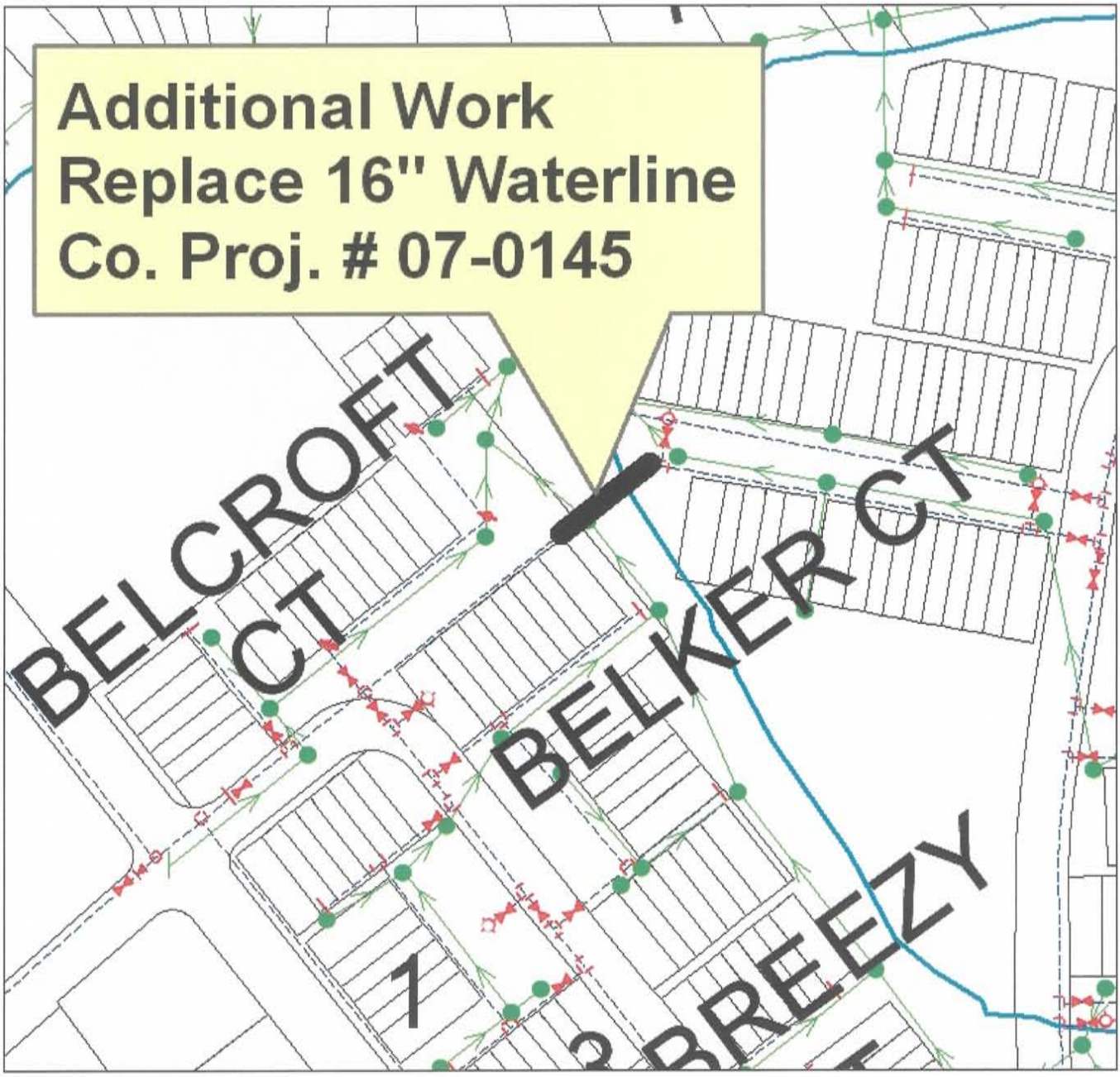
Sufficient funds have been appropriated in the Utilities water and sewer operating budgets to cover the estimated cost of $25,271.64 to refund the developer for the additional improvements.

Preparer: Allan M. Carmody Title: Director, Budget and Management

VICINITY SKETCH

Belfair Townhouses sections 3 & 4 Stage 2

County Project # 07-0145



Chesterfield County Department of Utilities

N
W
E
S

1 Inch equals 138.4 feet

000028

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.6.

Subject:

Request Permission for a Proposed Fence to Encroach Within a Sixteen-Foot Drainage Easement Across Lot 24, Tanner Village, Section A at Charter Colony

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Grant Gregory Brewer and Leslie Brewer, permission for a proposed fence to encroach within a 16' drainage easement across Lot 24, Tanner Village, Section A at Charter Colony, subject to the execution of a license agreement.

Summary of Information:

Gregory Brewer and Leslie Brewer, have requested permission for a proposed fence to encroach within a 16' drainage easement across Lot 24, Tanner Village, Section A at Charter Colony. This request has been reviewed by staff and approval is recommended.

District: Matoaca

Preparer: John W. Harmon Title: Right of Way Manager

Attachments: ■ Yes ☐ No

000029

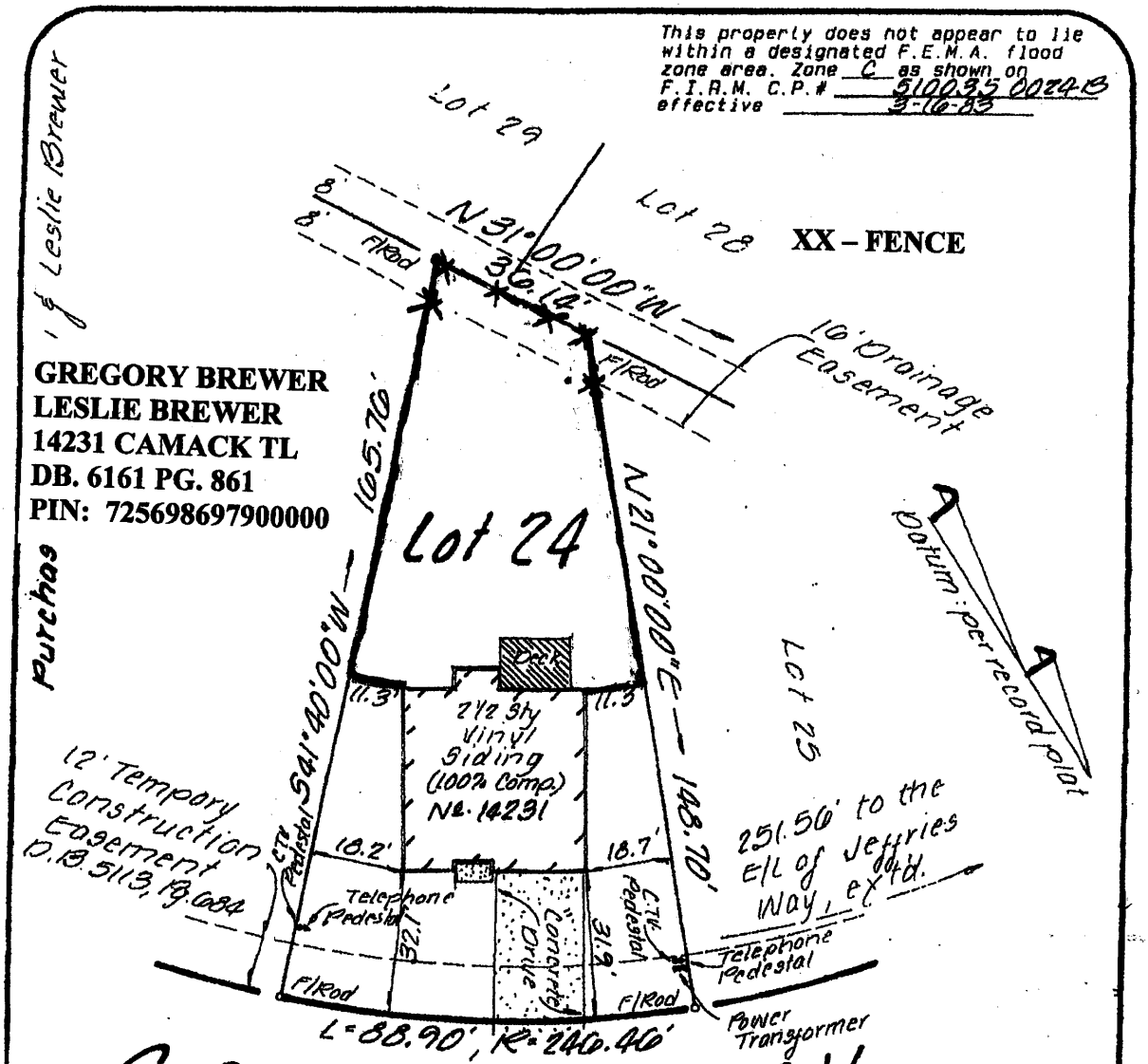
VICINITY SKETCH

REQUEST PERMISSION FOR A PROPOSED FENCE TO ENCROACH WITHIN A 16' DRAINAGE EASEMENT ACROSS LOT 24 TANNER VILLAGE SECTION A AT CHARTER COLONY

Chesterfield County Department of Utilities

1 Inch equals 33333 feet

000030


This property does not appear to lie within a designated F.E.M.A. flood zone area. Zone C as shown on F.I.R.M. C.P.# 510035 0024 B effective 3-16-83
Lot 29
Lot 28
XX - FENCE
N 31°00'00" W
35.14'
F/Rod
10' Drainage Easement
GREGORY BREWER
LESLIE BREWER
14231 CAMACK TL
DB. 6161 PG. 861
PIN: 725698697900000
Lot 24
N 21°00'00" E
148.70'
S 41°40'00" W
105.70'
Datum per record plat
Lot 25
11.3'
2½ Sty Vinyl Siding (100% Comp) No. 14231
11.3'
12' Tempory Construction Easement D.B. 5113, Pg. 0684
18.2'
18.7'
C.T.V. Pedestal
Telephone Pedestal
32.1'
Concrete Drive
31.2'
251.56' to the Ell of Jeffries Way, ext.
Telephone Pedestal
F/Rod
F/Rod
Power Transformer
L = 88.90', R = 240.46'
CAMACK TRAIL
Plat Showing
Lot 24, Tanner Village, Section A @ Charter Colony
Matoaca District,
Chesterfield County, Virginia.
COMMONWEALTH OF VIRGINIA
1/9/05
JAMES A. LOHR
NO. 2008
LAND SURVEYOR
IMPROVEMENT SURVEY
This is to certify that on Jan. 3rd. 2005 I made an accurate field survey of the premises shown hereon that all improvements and easements known or visible are shown hereon, that there are no encroachments by improvements either from adjoining premises or from subject premises upon adjoining premises other than shown hereon.
THIS PLAT WAS MADE WITHOUT BENEFIT OF A TITLE SURVEY OR REPORT
SCALE: 1" = 30'
DATE: Jan. 3rd. 2005
PROJ. NO.: 2563-04
DRAWN BY: C. Miller
DEED BOOK:
PAGE:
T. M. PAR. NO.:
Edwards, Kretz, Lohr & Associates, Inc.
Land Surveyors-Planners
Virginia-North Carolina
1900 Byrd Avenue, Suite 203
Richmond, Virginia, 23230
Phone (804) 673-9666
FAX (804) 673-9990

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.7.

Subject:

Approval of an Amendment to the Crater Planning District Commission's Charter Adding Charles City County as a Member

County Administrator's Comments:

County Administrator: _____

Board Action Requested:
The Board is requested to approve an amendment to the Crater Planning District Commission's Charter adding Charles City County as a member.

Summary of Information:

Chesterfield County has been a member of the Crater Planning District Commission (the "Commission") since 1985. The other current members of the Commission are the Counties of Dinwiddie, Greensville, Prince George, Surry and Sussex as well as the Cities of Colonial Heights, Hopewell, Petersburg and Emporia. The Commission's purpose is to promote orderly and efficient development of Planning District 19.

Charles City County is located within Planning District 19 and is eligible for membership. Its Board of Supervisors has expressed a desire to become a member of the Commission in light of other significant relationships that it has with neighboring localities, such as the Riverside Regional Jail. Charles City County would pay the same per capita rate that the other jurisdictions in the Commission pay and would have two members.

Adding Charles City County as a member of the Commission has been approved by the Commission's Executive Committee and unanimously approved by the full Commission. Amendment of the Commission's Charter must be approved by a quorum of current members. The proposed resolution amending the Charter is attached.

Preparer: Steven L. Micas Title: County Attorney

2723:76679.1

Attachments: ■ Yes ☐ No

000032

AMENDMENT OF CHARTER AGREEMENT OF CRATER PLANNING DISTRICT COMMISSION

WHEREAS, Charles City County has requested Crater Planning District Commission membership, and

WHEREAS, the Crater Planning District Commission agreed to accept Charles City County as a member of the Crater PDC at its June 28, 2007, meeting.

NOW, THEREFORE, BE IT RESOLVED that the Charter Agreement of the Crater Planning District Commission be amended as follows:

1. That Section 1 of Article II be amended as follows:

ARTICLE II

Membership

Section 1. (a) Each county, city and town of more than 3,500 population which is a party to this Charter Agreement shall have at least two representatives on the COMMISSION, who shall be appointed by the respective governing bodies of the participating governmental subdivisions. At least a majority of the members of the COMMISSION shall be officials of the governing bodies of the governmental subdivisions within the district, and the remaining members shall be qualified voters and residents of the district who hold no office elected by the people. An alternate may serve in lieu of one of the elected of each of the governing bodies of the participating governmental subdivisions.

(b) A town of 3,500 or less population may petition the COMMISSION to be represented thereon. The COMMISSION may, in its discretion, grant representation to such town by a majority vote of the members of the COMMISSION.

(c) Chesterfield County may become a member of the Crater Planning District upon such terms and conditions as may be mutually agreed upon by the board of supervisors of said county and the COMMISSION. (Amended – November-December, 1985)

(d) Charles City County may become a member of the Crater Planning District upon such terms and conditions as may be mutually agreed upon by the board of supervisors of said county and the COMMISSION.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.8.

Subject:

Initiation of a Rezoning Application for Tax I.D. 709-668-0844

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Initiate an application to rezone Tax I.D. 709-668-0844 from Community Business (C-3) to General Business (C-5) and appoint Russell Harris, Manager of Community Development Services, as the Board's agent.

Summary of Information:

The subject property was zoned on September 26, 2001 to Community Business (C-3) with Conditional Use Planned Development to permit General Business (C-5) uses on thirty (30) percent of the land area (1.89 acres of the 6.3 acres tract). Case 01SN0238 is attached for the Board's information. Mrs. Humphrey has indicated that the property owner desires General Business (C-5) uses on a greater land area and requests that the Board initiate the rezoning. Staff notes that such a proposal will not conform to the adopted Upper Swift Creek Plan nor staff's recommended amendment to the Plan.

Preparer: Kirkland A. Turner Title: Director of Planning

Attachments: ■ Yes ☐ No

000035

~~June 19, 2001 CPC~~
~~August 21, 2001 CPC~~
September 26, 2001 BS

STAFF'S
REQUEST ANALYSIS
AND
RECOMMENDATION

01SN0238

Ernest Belvin

Matoaca Magisterial District
16716 Hull Street Road

REQUEST: Rezone from Agricultural (A) to Community Business (C-3) with Conditional Use Planned Development to allow General Business (C-5) uses.

PROPOSED LAND USE:

Community commercial uses with the possibility of General Business (C-5) uses on thirty (30) percent of the land area are planned.

PLANNING COMMISSION RECOMMENDATION

RECOMMEND DENIAL.

STAFF RECOMMENDATION

Recommend denial for the following reasons:

A. The proposed General Business (C-5) uses do not comply with the Upper Swift Creek Plan which suggests the property is appropriate for community mixed use developments.

B. The application fails to address the recommendations of the Upper Swift Creek Plan which suggests that development should use public utilities.

C. The application fails to address the impact on the transportation system.

Providing a FIRST CHOICE Community Through Excellence in Public Service.

(NOTE: CONDITIONS MAY BE IMPOSED OR THE PROPERTY OWNER MAY PROFFER CONDITIONS. THE CONDITIONS NOTED WITH "STAFF/CPC" WERE AGREED UPON BY BOTH STAFF AND THE COMMISSION. CONDITIONS WITH ONLY A "STAFF" ARE RECOMMENDED SOLEY BY STAFF. CONDITIONS WITH ONLY A "CPC" ARE ADDITIONAL CONDITIONS RECOMMENDED BY THE PLANNING COMMISSION.)

PROFFERED CONDITIONS

1. At such time as the public water system has been extended to within 200 feet of the site, the owner/developer shall extend a water line to the site and connect all existing structures to the public water system. The necessary water line extension shall be designed to provide flow and pressure for fire protection purposes as deemed appropriate by the Fire Department. In addition, if deemed necessary, fire hydrants shall be provided at locations to be approved by the Fire Department. (U)

2. At such time as any structure built on-site which, incidental to that structure's use or operation, generates wastewater, concurrent with the public wastewater system having been extended to within 200 feet of the site, the owner/developer shall extend a wastewater line to the site and connect all structures to the public wastewater system. (U)

3. Prior to any site plan approval, 100 feet of right-of-way on the north side of Hull Street Road (Route 360), measured from the centerline of that part of Route 360, immediately adjacent to the property, shall be dedicated, free and unrestricted, to and for the benefit of Chesterfield County. (T)

4. Direct access from the property to Route 360 shall be limited to: 1) one (1) access, which shall align the existing Route 360 crossover adjacent to the property; and 2) one (1) entrance/exit, located towards the eastern property line. The exact location of these accesses shall be approved by the Transportation Department. (T)

5. To provide an adequate roadway system, the developer shall be responsible for the following:

   a. Construction of additional pavement along the westbound lanes of Route 360 at each approved access to provide a separate right turn lane, if warranted based on Transportation Department standards;

   b. Contribution of $10,000 towards the construction of additional pavement along the eastbound lanes of Route 360 at the western access for a left turn lane; and

c. Dedication to Chesterfield County, free and unrestricted, of any additional right-of-way (or easements) required for the improvement identified above. (T)

6. Prior to any site plan approval, a phasing plan for required road improvements, as identified in Proffered Condition 3, shall be submitted to and approved by the Transportation Department. (T)

7. To accommodate runoff from development of the property and to protect a pond on adjacent property from additional runoff, the following measures shall be taken:

a. Retain the 10-year post-development storm and release at a 2-year pre-development; or

b. Improve the dam to meet the county's current criteria; or

c. Provide improvements that would bypass the pond and dam and discharge at an adequate natural watercourse with all low flows entering the existing off-site pond; or

d. Acquire the pond and incorporate it into the development of the request site. (EE)

GENERAL INFORMATION

Location:

North line of Hull Street Road and known as 16716 Hull Street Road. Tax ID 709-668-0844 (Sheet 15).

Existing Zoning:

A

Size:

6.3 acres

Existing Land Use:

Single family residential

Adjacent Zoning and Land Use:

North - I-1 with Conditional Use Planned Development and A; Vacant
South - A, C-2 and C-5; Commercial, single family residential or vacant
East - A; Public/semi-public (church)
West - C-5; Vacant

UTILITIES

Public Water System:

There is an existing twenty-four (24) inch water line extending along the north side of Hull Street Road and terminating adjacent to Hampton Park Drive, approximately 6,500 feet east of this site. The public water system is not available to the request site.

Future extensions of this water line by the developers of "Hampton Park" to the western boundary of their development, approximately 2,800 feet east of the request site, and by developers of "Magnolia Green" to the eastern boundary of their development, will bring public water adjacent to the request site. An actual time-table for these extensions has not been determined.

In keeping with the recommendations of the Upper Swift Creek Plan, the Utilities Department recommends that the public water system be used for development of the request site. The applicant has submitted a proffer agreeing to connect all structures on the request site to the public water system when it has been extended to within 200 feet of the request site. (Proffered Condition 1)

Public Wastewater System:

There is an existing eighteen (18) inch wastewater trunk line extending along West Branch and terminating adjacent to Fox Haven Lane in Fox Croft Subdivision, approximately 9700 feet northeast of the request site. The public wastewater system is not presently available to the request site. There are no current proposals for extension of this wastewater trunk line.

It appears that it may be quite some time before the public wastewater system is extended towards the request site. It is anticipated that a joint venture among multiple property owners will be necessary to accomplish this extension. Allowing development to occur without the use of the public wastewater system may jeopardize that prospect.

In keeping with the recommendations of the Upper Swift Creek Plan, the Utilities Department recommends that the public wastewater system be used for development of the request site. The applicant has submitted a proffer basically agreeing to connect all

structures on the request site to the public wastewater system when it has been extended to within 200 feet of the request site. (Proffered Condition 2)

Private Septic System:

The Health Department must approve the use of private well and septic tank/drainfield systems.

ENVIRONMENTAL

Drainage and Erosion:

The property drains to an adjacent pond and then north via natural watercourses to Swift Creek Reservoir. There are no on-site drainage problems; however, this property drains to an adjacent pond that appears to be inadequate to accommodate runoff from this development; therefore, measures should be taken to address these concerns such as on-site retention, improvements to the dam or improvements which would divert runoff away from the pond and into a natural watercourse. The applicant has not addressed these concerns. Another alternative would be for the applicant to acquire the pond.

To insure that there are no erosion problems, there should be no timbering without first obtaining a land disturbance permit and the approved erosion control measures are in place. There are no on- or off-site erosion problems.

Water Quality:

The developer will be required to participate in the Upper Swift Creek Watershed BMP Plan and must pay a pro-rata share for construction of BMPs.

PUBLIC FACILITIES

Fire Service:

Fire and emergency medical service is provided to this property by the Clover Hill Fire/Medic Station, Company 7.

Public water is not proposed for this request. An adequate water supply is needed to insure optimum fire protection. Water shuttles and drafting operations require valuable time to establish an adequate water supply. If this request is granted without public water availability, the time for the Fire Department to obtain an adequate water supply may adversely affect fire suppression operations. This problem is evidenced by the fire that occurred on the adjacent church property to the east which destroyed that structure last year.

Transportation:

This request will not limit development to specific land uses; therefore, it is difficult to anticipate traffic generation. Based on shopping center trip rates, development could generate approximately 5,070 average daily trips. These vehicles will be distributed along Hull Street Road (Route 360) which had a 1997 traffic count of 19,113 vehicles per day.

Development must adhere to the Development Standards Manual in the Zoning Ordinance relative to access and internal circulation (Division 5). The applicant has proffered right of way dedication and certain road improvements along Route 360. However, these commitments will not adequately address the traffic impact of the proposed development. Staff cannot support this request.

The Thoroughfare Plan identifies Route 360 as a major arterial with a recommended right of way width of 120 to 200 feet. The applicant has proffered to dedicate 100 feet of right of way, measured from the centerline of Route 360, in accordance with that Plan. (Proffered Condition 3)

Access to major arterials, such as Route 360, should be controlled. An existing crossover on Route 360 is located towards the western part of the property. Developers of properties located at crossovers should provide access from those crossovers to the surrounding area. This is accomplished by the dedication of right of way and/or recordation of access easement(s). The adjacent property to the north is a 79 acre parcel that is zoned Light Industrial (I-1). Staff recommends that a right of way, for a "Special Access Street" be dedicated from the Route 360 crossover through the property to serve that adjacent parcel. The applicant has proffered that direct access to Route 360 will be limited to: 1) one (1) entrance/exit, which will align the existing crossover adjacent to the property; and 2) one (1) entrance/exit located towards the eastern property line (Proffered Condition 4). The applicant is unwilling to share these accesses with adjacent properties.

Road improvements must be provided to address the traffic impact of this development. These improvements should include: 1) construction of an additional lane of pavement along Route 360 for the entire property frontage; 2) construction of additional pavement along Route 360 at each approved access to provide a separate right turn lane; 3) construction of additional pavement along Route 360 at the crossover to provide a left turn lane; and 4) construction of part of the Special Access Street to include a three (3) lane typical section at Route 360; and 5) full cost for the installation of a traffic signal at the Route 360 crossover, if warranted. The applicant has proffered to provide a right turn lane along Route 360 at each access, and contribute $10,000 towards the construction of a left turn lane (Proffered Condition 5). These proffered road improvements will not mitigate the impact of this development.

Without a commitment to share the Route 360 accesses with adjacent properties and to provide additional road improvements, the Transportation Department cannot support this request.

LAND USE

Comprehensive Plan:

Lies within the boundaries of the Upper Swift Creek Plan which suggests the property is appropriate for community mixed use. Appropriate land uses in these areas include community-scale commercial developments. The Plan further suggests that development in this area should use public utilities.

Area Development Trends:

While adjacent properties are zoned for a mix of commercial and industrial uses, as well as agricultural, the area has seen little commercial or industrial development. There is commercial and single family residential development to the south, across Hull Street Road, and a church use to the east. Remaining adjacent property is vacant. Limited commercial development surrounding the Otterdale Road/Route 360 intersection is anticipated until such time as public utilities are extended to serve the area.

While a substantial amount of General Business (C-5) zoning exists to the west of the request site, those zonings were granted prior to the adoption of the Upper Swift Creek Plan. One of the goals in the Plan is to insure a land use pattern which does not result in typical strip commercial development along the Route 360 Corridor. The Plan suggests that key intersections, such as the land area in the vicinity of the Otterdale/Route 360 intersection should be reserved for uses that serve a community-scale market.

Zoning History:

On June 7, 1989, the Board of Zoning Appeals approved a Special Exception to permit a contractor's storage yard on the property (Case 89AN0244). The Special Exception was granted for a period not to exceed two (2) years from the date of approval.

On June 5, 1991, the Board of Zoning Appeals approved a renewal of Special Exception 89AN0244 to permit a contractor's storage yard on the property (Case 91AR0180). The renewal was granted for a period not to exceed five (5) years from the date of approval.

Case 91AR0180 expired without renewal on June 5, 1996.

Site Design:

The request property lies within an Emerging Growth Area. Redevelopment of the site or new construction must conform to the requirements of the Zoning Ordinance which address access, parking, landscaping, architectural treatment, setbacks, signs, buffers, utilities and screening of dumpsters and loading areas.

Architectural Treatment:

Currently, the Zoning Ordinance requires that the architectural treatment of buildings, including materials, color and style, be compatible with buildings located within the same project. Compatibility may be achieved through the use of similar building massing, materials, scale, colors and other architectural features.

Currently, within Emerging Growth Areas, no building exterior which would be visible to any A District or any public right of way may consist of architectural materials inferior in quality, appearance, or detail to any other exterior of the same building. There is, however, nothing to preclude the use of different materials on different building exteriors, but rather, the use of inferior materials on sides which face adjoining property. No portion of a building constructed of unadorned concrete block or corrugated and/or sheet metal may be visible from any adjoining A District or any public right of way. No building exterior may be constructed of unpainted concrete block or corrugated and/or sheet metal.

All junction and accessory boxes must be minimized from view of adjacent property and public rights of way by landscaping or architectural treatment integrated with the building served. Mechanical equipment, whether ground-level or rooftop, must be screened from view of adjacent property and public rights of way and designed to be perceived as an integral part of the building.

Buffers and Screening:

Currently, the Zoning Ordinance requires that solid waste storage areas (i.e., dumpsters, garbage cans, trash compactors, etc.) be screened from view by a solid wall, fence, dense evergreen plantings or architectural feature and that such area, within 1,000 feet of any A District, not be serviced between the hours of 9:00 p. m. and 6:00 a. m. In addition, sites must be designed and buildings oriented so that loading areas are screened from adjacent properties where loading areas are not permitted, from property in an A District that is designated on the Comprehensive Plan for a district in which loading areas are not permitted and from public rights of way.

With the approval of this request, outside storage would be permitted by right in conjunction with C-5 uses and with restrictions in conjunction with C-3 uses. Outside storage areas must be screened from view of adjacent properties where such uses are not permitted, from

property in an A District that is designated on the Comprehensive Plan for R, R-TH, R-MF, A, O or I-1 Districts and from public rights of way.

CONCLUSIONS

The proposed General Business (C-5) uses do not comply with the Upper Swift Creek Plan which suggests the property is appropriate for community mixed use developments with the use of public utilities.

The requested C-5 uses represent more intense development than that which is suggested by the Plan. In addition, the Plan suggests that new development should occur with the extension of public water and sewer. The applicant has failed to address those recommendations of the Plan. One of the purposes of the recommendations regarding use of public utilities is to insure orderly growth and development and avoid leap frog development. In addition, the application fails to address the impact on the transportation system.

Given these considerations, denial of this request is recommended.

CASE HISTORY

Planning Commission Meeting (6/19/01):

On their own motion, the Commission deferred this case to August 21, 2001.

Staff (6/20/01):

The applicant was advised in writing that any significant new or revised information should be submitted no later than June 25, 2001, for consideration at the Commission's August 21, 2001, public hearing.

Staff (7/26/01):

To date, no new information has been received.

Applicant (7/30/01 and 8/6/01):

The applicant submitted the proffered conditions discussed herein.

Planning Commission Meeting (8/21/01):

The applicant did not accept the recommendation. There was no opposition present.

Mr. Marsh expressed concerns that the applicant had failed to adequately address the transportation impacts.

On motion of Mr. Marsh, seconded by Mr. Gulley, the Commission recommended denial of this request.

AYES: Unanimous

The Board of Supervisors, on Wednesday, September 26, 2001, beginning at 7:00 p.m., will take under consideration of this request.

N

1000 0 1000 Feet

01SN0238
Rezoning: A TO C-3
W/C.U.P.D.
SH. 15

OTTERDALE
ROUTE 360
HAMPTON PARK
CROSSOVER
THOROUGHFARE PLAN ROAD
SPECIAL ACCESS STREET
CASE 01SN0238
NORTH
BALDWIN CREEK
01SN0238 - 1

for use as open space, as defined in the Chesterfield County Zoning Ordinance, for the benefit of the residents of Chesdin Landing and Chesdin Shores. (EE)

3. For each of the 100 single family residential lots developed in excess of 535 residential lots, the Applicants shall pay the following to the County prior to the time of building permit application for infrastructure improvements within the service district for the Property:

   a. $7,000 per lot if paid on or prior to June 30, 2002, or,

   b. The amount approved by the Board of Supervisors not to exceed $7,000 per lot adjusted upward by any increase in the Marshall and Swift Building Cost Index between July 1, 2001 and July 1 of the fiscal year in which the payment is made if paid after June 30, 2002. (B & M)

(Staff Note: Proffered Conditions 2 and 3 are in addition to conditions approved with Case 95SN0161.)

Ayes: Humphrey, Miller, Barber, McHale and Warren.
Nays: None.

01SN0238

In Matoaca Magisterial District, **ERNEST BELVIN** requested rezoning and amendment of zoning district map from Agricultural (A) to Community Business (C-3) with Conditional Use Planned Development to allow General Business (C-5) uses. The density of such amendment will be controlled by zoning conditions or Ordinance standards. The Comprehensive Plan suggests the property is appropriate for community mixed use uses. This request lies on 6.3 acres and is known as 16716 Hull Street Road. Tax ID 709-668-0844 (Sheet 15).

Mr. Jacobson presented a summary of Case 01SN0238 and stated that the Planning Commission and staff recommend denial because the proposed General Business (C-5) uses do not comply with the Upper Swift Creek Plan which suggests the property is appropriate for community mixed use developments; the application fails to address the recommendations of the Plan which suggests that development should use public utilities; and the application fails to address the impact on the transportation system.

Mr. Ernest Belvin stated that all parcels from Otterdale Road to Baldwin Creek Road are zoned C-5 except for his parcel and an adjoining parcel owned by Chesterfield Baptist Church. He further stated that, if he were to provide the right of way requested by staff, he would lose the dwelling, septic field, garage and new well. He stated that he is surrounded by C-5 zoning, and requested that the Board approve his request.

Mr. McCracken stated that, if the applicant would agree to provide a public access, alignments could be made on the property to avoid taking the dwelling and improvements.

Mrs. Humphrey stated that there are four to five crossover accesses within 2,000 feet of the vicinity of the applicant's property. She further stated that she feels access issues in the area have been addressed, and does not feel it is necessary to request that the applicant provide an access for the subject six-acre parcel.

Mr. George Beadles stated that he feels the property should have been developed many years ago and indicated that even if the Board grants relief on the access issue, the applicant will still have a number of other issues that need to be addressed. He stated that he feels the Board should deny the request.

There being no one else to speak to the case, the public hearing was closed.

Mrs. Humphrey stated that she is comfortable with the proffered conditions made by the applicant.

Mrs. Humphrey then made a motion, seconded by Mr. Miller, for the Board to approved Case 01SN0238 and accept the following proffered conditions:

1. At such time as the public water system has been extended to within 200 feet of the site, the owner/developer shall extend a water line to the site and connect all existing structures to the public water system. The necessary water line extension shall be designed to provide flow and pressure for fire protection purposes as deemed appropriate by the Fire Department. In addition, if deemed necessary, fire hydrants shall be provided at locations to be approved by the Fire Department. (U)

2. At such time as any structure built on-site which, incidental to that structure's use or operation, generates wastewater, concurrent with the public wastewater system having been extended to within 200 feet of the site, the owner/developer shall extend a wastewater line to the site and connect all structures to the public wastewater system. (U)

3. Prior to any site plan approval, 100 feet of right-of-way on the north side of Hull Street Road (Route 360), measured from the centerline of that part of Route 360, immediately adjacent to the property, shall be dedicated, free and unrestricted, to and for the benefit of Chesterfield County. (T)

4. Direct access from the property to Route 360 shall be limited to: 1) one (1) access, which shall align the existing Route 360 crossover adjacent to the property; and 2) one (1) entrance/exit, located towards the eastern property line. The exact location of these accesses shall be approved by the Transportation Department. (T)

5. To provide an adequate roadway system, the developer shall be responsible for the following:

   a. Construction of additional pavement along the westbound lanes of Route 360 at each approved access to provide a separate right turn lane, if warranted based on Transportation Department standards;

   b. Contribution of $10,000 towards the construction of additional pavement along the eastbound lanes of Route 360 at the western access for a left turn lane; and

   c. Dedication to Chesterfield County, free and unrestricted, of any additional right-of-way (or easements) required for the improvement identified above. (T)

6. Prior to any site plan approval, a phasing plan for required road improvements, as identified in Proffered Condition 3, shall be submitted to and approved by the Transportation Department. (T)

7. To accommodate runoff from development of the property and to protect a pond on adjacent property from additional runoff, the following measures shall be taken:

   a. Retain the 10-year post-development storm and release at a 2-year pre-development; or

   b. Improve the dam to meet the county's current criteria; or

   c. Provide improvements that would bypass the pond and dam and discharge at an adequate natural watercourse with all low flows entering the existing off-site pond; or

   d. Acquire the pond and incorporate it into the development of the request site. (EE)

Ayes: Humphrey, Miller, Barber, McHale and Warren.
Nays: None.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B.9.

Subject: Declaration of Mandatory Water Use Restrictions

County Administrator's Comments:

County Administrator: _____

Board Action Requested: Staff requests that the Board of Supervisors confirm and approve the declaration of mandatory water use restrictions to assure maximum beneficial use of available water resources for the public welfare during the prevailing drought conditions. Staff further recommends that the Board establish the effective date for mandatory water use restrictions to be October 15, 2007.

Summary of Information:

Based on the current drought and low water level conditions in Lake Chesdin, the Appomattox River Water Authority (ARWA) has issued a request for its members to enact mandatory water use restrictions. With no additional rainfall, it is estimated that less than 200 days of available water-supply is contained in Lake Chesdin.

Provisions related to enacting water use restrictions are provided in the county code sections 18-151 through 18-158. The attached document, excerpted from the code, lists the specific items required upon the declaration of mandatory public water use restrictions. Other items related to implementation of these restrictions such as public notification, violations and penalties are also addressed in the code.

It is anticipated that all members of the ARWA will declare similar mandatory restrictions in response to the Authority's request. The mandatory restrictions will be nullified when water-supply conditions recover to normal status.

District:

Preparer: Roy E. Covington Title: Director of Utilities

Attachments: ■ Yes ☐ No

000050

Sec. 18-153. Mandatory public water use restrictions.

Upon the declaration of mandatory public water use restrictions, users of the public water system shall limit their use of public water as follows:

(a) Decorative or landscape fountains. Water use is prohibited.

(b) Paved areas. Washing is prohibited except for immediate health and safety requirements.

(c) Swimming pools. Limit to filling and replenishing to maintain health and safety. All other uses are prohibited.

(d) Vehicle washing. Non-commercial washing is limited to one day per week using only hoses with an automatic shut-off nozzle. Commercial vehicle washing businesses are permitted to operate under normal conditions.

(e) Established landscaping and gardens. Watering is limited to three days per week by address. Addresses ending with an odd number may water only on Tuesdays, Thursdays and Saturdays. Addresses ending with an even number and locations with no street number may water only on Wednesdays, Fridays and Sundays. Watering is prohibited on Mondays. Watering with buckets of up to five gallons per day is permitted any time.

(f) Vegetable gardens. Limit watering to any two days per week and from 8 p.m. – 10 a.m. on any day. Watering by bucket is unlimited.

(g) New landscaping. All watering is permitted for the first 10 days after planting. Thereafter, the restriction for established landscaping and vegetable gardens shall apply.

(h) Golf courses. Watering restricted to Tuesday through Sunday between 8:00 p.m. and 4:00 a.m. Greens are exempted from this restriction.

(i) Businesses. Limit to essential use only.

(j) Restaurants. No restrictions.

(k) All other consumption. Conservation by any means encouraged.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 8.B 10.

Subject:

Transfer $2,000 from the Midlothian District Improvement Fund to the Parks and Recreation Department to Make Field Improvements to the Existing Baseball Field at James River High School

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

The Board is requested to transfer $2,000 from the Midlothian District Improvement Fund to the Parks and Recreation Department to make field improvements to the existing baseball field at James River High School.

Summary of Information:

Supervisor Sowder has requested the Board to transfer $2,000 from the Midlothian District Improvement Fund to the Parks and Recreation Department to make field improvements to the existing baseball field at James River High School. These include: regrading of the field to provide positive drainage; amending and importing topsoil to improve soil quality; installing a drain outside foul lines to improve drainage; providing new skinned baselines; providing an irrigation system; installing new vinyl-coated fencing; installing new sod in both the infield and outfield; installing a new backstop system; and moving an existing scoreboard from an adjacent field.

Preparer: Allan M. Carmody Title: Director, Budget & Management

0400:76752.1

Attachments: ■ Yes ☐ No

000052

The James River High School Athletic Boosters originally requested funds from the County for these improvements. The County is not legally authorized to give money to private organizations like the Athletic Boosters but the County can give money to the Parks and Recreation Department to make capital improvements on County property for a public purpose. All purchases must be made by Parks and Recreation itself and the purchases must comply with the County's purchasing policies.

For information regarding available balances in the District Improvement Fund accounts, please reference the District Improvement Fund Report.

DISTRICT IMPROVEMENT FUNDS
APPLICATION

This application must be completed and signed before the County can consider a request for funding with District Improvement Funds. Completing and signing this form does not mean that you will receive funding or that the County can legally consider your request. Virginia law places substantial restrictions on the authority of the County to give public funds, such as District Improvement Funds, to private persons or organizations and these restrictions may preclude the County's Board of Supervisors from even considering your request.

1. What is the name of the applicant (person or organization) making this funding request?

James River High School - Athletic Boosters, Inc

2 If an organization is the applicant, what is the nature and purpose of the organization? (Also attach organization's most recent articles of incorporation and/or bylaws to application.)

To foster school spirit, teamwork, fair play and academic excellence for the student athletes. To raise funds needed to support the activities fo all James River HS Athletic programs

3. What is the amount of funding you are seeking?

$ 2000

Total project - $500,000;

Phase I - $170,000 - 200,000.

4. Describe in detail the funding request and how the money, if approved, will be spent.

The estimated cost of the project is $500,000. We have broken the project into phases; the estimated cost of phase I is $170,000 - 200,000. The funds will be used to construct a baseball diamond; playing surface; drainage; irrigation and fencing.

5. Is any County Department involved in the project, event or program for which you are seeking funds?

We have met with Mike Golden on several occasions to seek support and assistance. He is supportive of the project however has been unable to support financially.

Met with county's site development team for approval - likewise, they supported the project.

6. If this request for funding will not fully fund your activity or program, what other individuals or organizations will provide the remainder of the funding?

Currently we are seeking funds; have received financial support from Village Bank; Huguenot Little League; Ukrops Foundation; Dave's Auto Spa; Evans Carpet and players families. Fundraising is currently on-going.

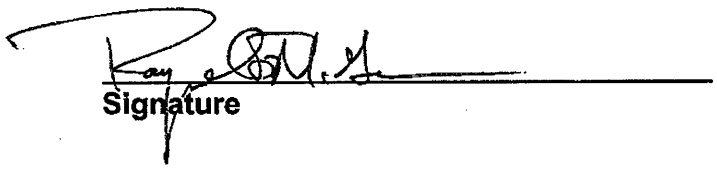
7. If applicant is an organization, answer the following:

Is the organization a corporation?	Yes	☒	No	☐
Is the organization non-profit?	Yes	☒	No	☐
Is the organization tax-exempt?	Yes	☒	No	☐

8. What is the address of the applicant making this funding request?
James River High School - Athletic Boosters, Inc; 3700 James River Road; Midlothian, VA 23113

9. What is the telephone number; fax number, e-mail address of the applicant?
Ray McGowan; raymond.mcgowan@awin.com; 804.543.4782 (M), 804.226.6199 (F); Craig Schwartz; craig.g.schwartz@pmusa.com; 804.852.3921 (M), 804.484.8264 (F)

Signature of applicant. If you are signing on behalf of an organization you must be the president, vice-president, chairman/director or vice-chairman of the organization.



Signature

Past- President
Title (if signing on behalf of an organization)

Raymond McGowan
Printed Name

9/4/07
Date

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 9.A.

Subject: Developer Water and Sewer Contracts

County Administrator's Comments:

County Administrator: _____

Board Action Requested: The Board of Supervisors has authorized the County Administrator to execute water and/or sewer contracts between County and Developer where there are no County funds involved.

The report is submitted to Board members as information.

Summary of Information:

The following water and sewer contracts were executed by the County Administrator:

1. Contract Number: 03-0391
   Project Name: Elm Crest and Ashley Woods at Elm Crest

   Developer: Elm Crest Development LLC
   Contractor: R.M.C. Contractors, Incorporated

   Contract Amount: Water Improvements - $210,069.00
   Wastewater Improvements - $202,176.00

   District: Clover Hill

Preparer: William O. Wright Title: Assistant Director of Utilities

Attachments: ☐ Yes ■ No

000057

2.	Contract Number:	06-0235	
	Project Name:	Springdale at Lucy Corr Village	
	Developer:	Lucy Corr Village	
	Contractor:	Liesfield Contractor Incorporated	
	Contract Amount:	Water Improvements -	$361,909.00
		Wastewater Improvements -	$226,621.00
	District:	Dale	
3.	Contract Number:	06-0309	
	Project Name:	Watkins Centre Offsite Sewer - St. Ives Subdivision	
	Developer:	Leroy Vaughan	
	Contractor:	R.M.C. Contractors	
	Contract Amount:	Wastewater Improvements -	$61,370.00
	District:	Midlothian	
4.	Contract Number:	07-0045	
	Project Name:	Somers Lark, Section B	
	Developer:	Jacobs Glenn LC	
	Contractor:	Excalibur Construction Corporation	
	Contract Amount:	Water Improvements -	$43,038.00
		Wastewater Improvements -	$53,405.00
	District:	Clover Hill	
5.	Contract Number:	07-0146	
	Project Name:	Hawthorne Village at charter Colony, Section B	
	Developer:	B. B. Hunt, LLC	
	Contractor:	Rhyne Contractors, Incorporated	
	Contract Amount:	Water Improvements -	$89,629.60
		Wastewater Improvements -	$52,007.65
	District:	Matoaca	

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 9.B.

Subject:

Status of General Fund Balance, Reserve for Future Capital Projects, District Improvement Fund, and Lease Purchases

County Administrator's Comments:

County Administrator:

Board Action Requested:

Summary of Information:

Preparer: James J. L. Stegmaier Title: County Administrator

Attachments: ■ Yes ☐ No

000059

CHESTERFIELD COUNTY
UNDESIGNATED GENERAL FUND BALANCE
October 10, 2007

BOARD MEETING DATE	DESCRIPTION	AMOUNT	BALANCE
07/01/07	FY2008 Beginning Budgeted Balance		$49,945,000 *

*Pending outcome of FY2007 Audit Results

CHESTERFIELD COUNTY
RESERVE FOR FUTURE CAPITAL PROJECTS
October 10, 2007

Board Meeting Date	Description	Amount	Balance
6/30/2007	FY07 Ending Balance		$1,097,798
FOR FISCAL YEAR 2008 BEGINNING JULY 1, 2007			
4/11/2007	FY08 Budgeted Addition	15,521,300	16,619,098
4/11/2007	FY08 Capital Projects	(14,889,300)	1,729,798

*Pending outcome of FY2007 Audit Results

DISTRICT IMPROVEMENT FUNDS
September 26, 2007

District	Prior Years Carry Over	FY2008 Appropriation	Funds Used Year to Date	Items on 9/26 Agenda	Balance Pending Board Approval
Bermuda	$59,140	$48,500	$24,690	$0	**$82,950**
Clover Hill	$85,148	48,500	14,800	0	**118,848**
Dale	$84,195	48,500	4,102	0	**128,593**
Matoaca	$55,842	48,500	3,000	0	**101,342**
Midlothian	$51,927	48,500	9,513	2,000	**88,914**
County Wide	-	13,500	0	0	**13,500**

Prepared by
Accounting Department
September 30, 2007

SCHEDULE OF CAPITALIZED LEASE PURCHASES
APPROVED AND EXECUTED

Date Began	Description	Original Amount	Date Ends	Outstanding Balance 9/30/07
04/99	Public Facility Lease – Juvenile Courts Project	$16,100,000	11/19	$10,465,000
01/01	Certificates of Participation - Building Construction, Expansion and Renovation; Acquisition/Installation of Systems	13,725,000	11/21	9,125,000
03/03	Certificates of Participation – Building Construction, Expansion and Renovation	6,100,000	11/23	5,140,000
03/04	Certificates of Participation – Building Construction, Expansion and Renovation; Acquisition/Installation of Systems	21,970,000	11/24	19,690,000
10/04	Cloverleaf Mall Redevelopment Project	9,225,000	10/08	9,225,000
11/04	School Archival/Retrieval System Lease	21,639	01/08	3,139
12/04	Energy Improvements at County Facilities	1,519,567	12/17	1,383,317
12/04	Energy Improvements at School Facilities	427,633	12/10	306,953
05/05	Certificates of Participation – Building Acquisition, Construction, Installation, Furnishing and Equipping; Acquisition/Installation of Systems	14,495,000	11/24	13,465,000
05/06	Certificates of Participation – Building Acquisition, Construction, Installation, Furnishing and Equipping; Acquisition/Installation of Systems	11,960,000	11/24	11,155,000
08/07	Certificates of Participation – Building Expansion/Renovation, Equipment Acquisition	22,220,000	11/27	22,220,000
	TOTAL APPROVED AND EXECUTED	$117,763,839		$102,178,409

PENDING EXECUTION

Description	Approved Amount
None	

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 9.C.

Subject:

Report of Planning Commission Substantial Accord Determination for New Cingular Wireless PCS, LLC (Case 08PD0134) to Co-locate an Antenna on a Virginia Power Structure Located on the North Line of Spring Run Road, West of Raven Wing Drive

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

On September 18, 2007, the Planning Commission found Case 08PD0134 in substantial accord with the Comprehensive Plan, as per the attached. (AYES: Messrs: Gecker, Gulley, Bass, Litton and Wilson.) Staff recommends no action.

Summary of Information:

State law provides that the Board may overrule the Planning Commission's determination or refer the matter back to the Planning Commission for an additional public hearing and decision. If the Board takes no action, the substantial accord determination will become final.

Preparer: Kirkland A. Turner Title: Director of Planning

Attachments: ■ Yes ☐ No # 000064

September 18, 2007 CPC

SUBSTANTIAL ACCORD REVIEW

08PD0134

New Cingular Wireless PCS, LLC

Matoaca Magisterial Districts
North line of Spring Run Road

REQUEST: Substantial accord review for a proposed public facility (communications tower).

PROPOSED LAND USE:

A communications tower, incorporated into an existing electrical transmission structure, and associated improvements are planned.

RECOMMENDATION

Recommend approval for the following reasons:

A. The proposal conforms to the Public Facilities Plan and Tower Siting Policy. Incorporation of the communications facilities into an existing electrical transmission tower eliminates the need for an additional freestanding structure in the area, thereby minimizing tower proliferation.

B. The Ordinance minimizes the possibility of any adverse impact on the County Communications System or the County Airport.

(NOTE: CONDITIONS MAY BE IMPOSED OR THE PROPERTY OWNER(S) MAY PROFFER CONDITIONS.)

GENERAL INFORMATION

Location:

North line of Spring Run Road, west of Raven Wing Drive. Tax IDs 737-663-Part of 8598 and 738-664-Part of 1115.

Existing Zoning:

A

Size:

0.2 acres

Existing Land Use:

Single-family residential

Adjacent Zoning and Land Use:

North, East and West - A; Single-family residential
South – R-25; Single-family residential

UTILITIES; PUBLIC FACILITIES; AND TRANSPORTATION

The proposed use will have no impact on these facilities.

ENVIRONMENTAL

If more than 2500 square feet of land is disturbed, a land disturbance permit must be obtained from the Department of Environmental Engineering.

COUNTY COMMUNICATIONS

The Zoning Ordinance requires that any structure over eighty (80) feet in height be reviewed by the County's Public Safety Review Team for potential detrimental impacts the structure could have on the County's Radio Communications System microwave paths. This determination must be made prior to construction of the communications tower.

COUNTY AIRPORT

A preliminary review of this proposal indicates that, given the approximate location and elevation of the proposed installation, there will be no adverse affect on the County Airport.

LAND USE

Comprehensive Plan:

Lies within the boundaries of the Southern and Western Area Plan which suggests properties is appropriate for residential use of 1-5 acre lots; suited to R-88 zoning.

The Public Facilities Plan, an element of the Comprehensive Plan, suggests that energy and communications uses should be co-located, whenever feasible, to minimize impacts on existing and future areas of development.

Area Development Trends:

The property is occupied by a Virginia Power high-tension transmission line. Area property is characterized by single-family residential uses on acreage parcels. Residential development is expected to continue in this area for the foreseeable future, in accordance with the Plan.

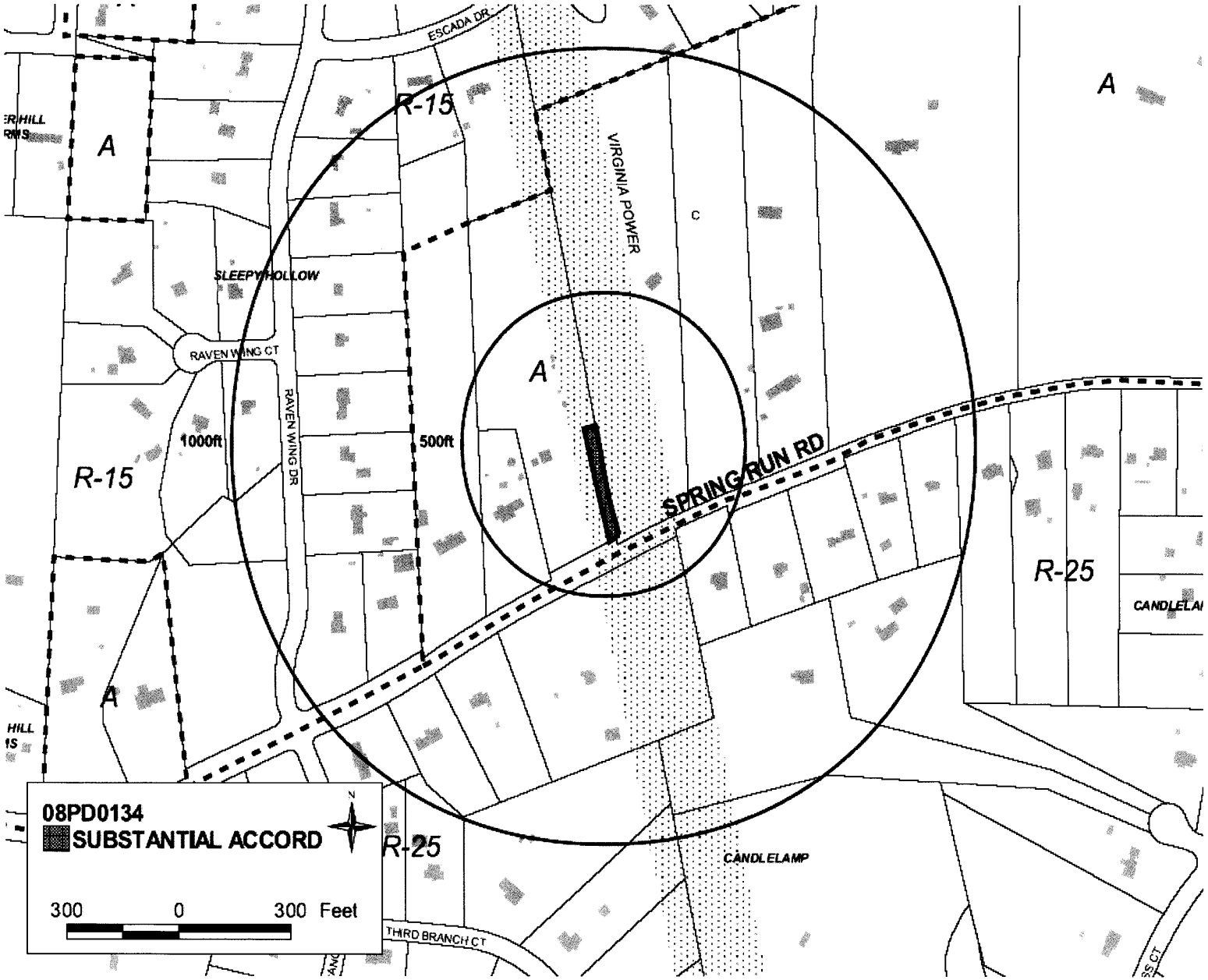
Development Standards:

The Zoning Ordinance allows communications towers in an Agricultural(A) District provided that antennae are co-located on electric transmission structures; are flush-mount; are restricted to a maximum height of twenty (20) feet above the height of the transmission structure; and are gray or other neutral color.

CONCLUSION

The proposed communications tower satisfies the criteria of location, character and extent as specified in the Code of Virginia. Specifically, the Public Facilities Plan suggests that communications towers should be located to minimize the impact on existing or planned areas of development and that energy and communications facilities should co-locate whenever feasible. The communications tower will be incorporated into an existing permitted electrical transmission structure. The addition of the communications facilities into the structure of the existing transmission tower does not generate a visual impact that is significantly greater than the visual impact of the existing electrical transmission tower. This co-location will eliminate the need for additional freestanding towers in the area, thereby minimizing tower proliferation. In addition, the Ordinance minimizes the possibility of any adverse impact on the County Communications System or the County Airport.

Given these considerations, staff recommends the Commission find the proposal consistent with the adopted Comprehensive Plan.


ESCADA DR
R-15
A
VIRGINIA POWER
SLEEPY HOLLOW
RAVEN WING CT
RAVEN WING DR
1000ft
500ft
SPRING RUN RD
R-25
CANDLELAMP
THIRD BRANCH CT
08PD0134
SUBSTANTIAL ACCORD
300 0 300 Feet

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 14.A.

Subject:

Resolution Recognizing Mr. William M. "Willie" Harris, Waste and Resource Recovery Division Cashier/Attendant, General Services Department, Upon His Retirement

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Adoption of attached resolution.

Summary of Information:

Staff requests the Board adopt the attached resolution recognizing Mr. William M. "Willie" Harris for 28 years of service to Chesterfield County.

Preparer: Rob Key Title: Acting Director

Attachments: ■ Yes ☐ No

000069

RECOGNIZING MR. WILLIAM M. HARRIS UPON HIS RETIREMENT

WHEREAS, Mr. William M. "Willie" Harris retired on October 1, 2007 after providing 28 years of dedicated and faithful service to Chesterfield County; and

WHEREAS, Mr. Harris began his service February 1, 1979, collecting refuse for the Department of General Services, Chesterfield County; and

WHEREAS, Mr. Harris transferred from the collections section to convenience center operations in February 1998; and

WHEREAS, Mr. Harris helped the county's Sanitation Department change and become the Division of Solid Waste, and then the Division of Waste and Resource Recovery, representing a shift to protection of the environment; and

WHEREAS, Mr. Harris is known for his friendly, easy-going manner; his ability to work with citizens in an effective way; caring for his fellow co-workers; and performing his duties in a most professional manner; and

WHEREAS, Mr. Harris provided the wisdom of his years and experience in contributing to the division's strategic planning conferences, process action teams, and other activities; and

WHEREAS, Mr. Harris always performed his duties and responsibilities in an excellent manner placing the welfare and safety of co-workers, other county employees, and the public above his own personal comfort and feelings and will be missed by his fellow co-workers.

NOW, THEREFORE BE IT RESOLVED that the Chesterfield County Board of Supervisors, this 10th day of October 2007, publicly recognizes Mr. William M. "Willie" Harris and extends appreciation for his 28 years of dedicated service to the county, congratulations upon his retirement, and best wishes for a long and happy retirement.

AND, BE IT FURTHER RESOLVED that a copy of this resolution be presented to Mr. Harris and that this resolution be permanently recorded among the papers of this Board of Supervisors of Chesterfield County, Virginia.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 14.B.

Subject:

Resolution Recognizing "Christmas Mother Day" in Chesterfield County

County Administrator's Comments:

County Administrator:

Board Action Requested:

Adopt the attached resolution.

Summary of Information:

Mrs. Barbara Chapman has been elected Christmas Mother for 2007. She will be present at the meeting to accept the resolution.

Preparer: Janice Blakley Title: Deputy Clerk to the Board

Attachments: ■ Yes ☐ No

000071

RECOGNIZING OCTOBER 16, 2007, AS "CHRISTMAS MOTHER DAY"

WHEREAS, most families in Chesterfield County enjoy peace and happiness during the Christmas holidays; and

WHEREAS, there are many children, elderly and the less fortunate, who do not have the means to enjoy this special time of year; and

WHEREAS, the Chesterfield-Colonial Heights Christmas Mother Program has successfully provided food, gifts and clothing to many of our citizens in the past; and

WHEREAS, Mrs. Barbara Chapman has been elected Christmas Mother for 2006 and requests support of all the citizens of Chesterfield County to ensure that those less fortunate may enjoy this special season of the year.

NOW, THEREFORE, BE IT RESOLVED that the Chesterfield County Board of Supervisors publicly recognizes October 16, 2007, as "Christmas Mother Day" and urges all citizens of Chesterfield County to support this worthy endeavor.

AND, BE IT FURTHER RESOLVED that the Board of Supervisors publicly commends the Christmas Mother Program for its successful efforts in past years and extends best wishes for a successful 2006 season.

AND, BE IT FURTHER RESOLVED that a copy of this resolution be presented to Mrs. Chapman and that this resolution be permanently recorded among the papers of this Board of Supervisors of Chesterfield County, Virginia.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 14.C.

Subject:

Resolution Recognizing Mr. Matthew Ryan Bukas, Troop 800, Sponsored by Bethel Baptist Church, and Mr. Elliott Reuel Howell, Troop 806, Sponsored by Woodlake United Methodist Church, Upon Attaining Rank of Eagle Scout

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Adoption of the attached resolution.

Summary of Information:

Staff has received requests for the Board to adopt a resolution recognizing Mr. Matthew Ryan Bukas, Troop 800, and Mr. Elliott Reuel Howell, Troop 806, Upon Attaining Rank of Eagle Scout. They will be present at the meeting, accompanied by members of their families, to accept their resolutions.

Preparer: Janice Blakley Title: Clerk to the Board

Attachments: ■ Yes ☐ No

000073

WHEREAS, the Boy Scouts of America was incorporated by Mr. William D. Boyce on February 8, 1910, and was chartered by Congress in 1916; and

WHEREAS, the Boy Scouts of America was founded to build character, provide citizenship training and promote physical fitness; and

WHEREAS, after earning at least twenty-one merit badges in a wide variety of skills including leadership, service and outdoor life, serving in a leadership position in a troop, carrying out a service project beneficial to their community, being active in the troop, demonstrating Scout spirit, and living up to the Scout Oath and Law

Mr. Matthew Ryan Bukas, Troop 800, sponsored by Bethel Baptist Church, and Mr. Elliott Reuel Howell, Troop 806, sponsored by Woodlake United Methodist Church, have accomplished those high standards of commitment and have reached the long-sought goal of Eagle Scout which is received by only four percent of those individuals entering the Scouting movement; and

WHEREAS, growing through their experiences in Scouting, learning the lessons of responsible citizenship, and endeavoring to prepare themselves for roles as leaders in society, Matthew and Elliott have distinguished themselves as members of a new generation of prepared young citizens of whom we can all be very proud.

NOW, THEREFORE, BE IT RESOLVED that the Chesterfield County Board of Supervisors, this 10th of October 2007, hereby extends its congratulations to Mr. Matthew Ryan Bukas and Mr. Elliott Reuel Howell, and acknowledges the good fortune of the county to have such outstanding young men as its citizens.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.A.

Subject:

Public Hearing to Consider Conveyance of 3.44-Acres of Property Located on Reycan Road in the Chesterfield County Industrial Airpark to Courthouse III, LLC

County Administrator's Comments:

County Administrator: _____

Board Action Requested:
Staff recommends that the Board hold a public hearing and authorize the County Administrator to convey a 3.44-acre parcel located on Reycan Road to Courthouse III, LLC.

Summary of Information:
On February 14, 2007, the Board authorized granting Courthouse III, LLC an exclusive option to purchase from time to time up to 13 acres of land in the Airpark for a purchase price of $57,600 per acre, exclusive of any wetlands. Courthouse III has now notified the County that it wishes to exercise its right to purchase 3.44 acres of the property (as highlighted on the attached plat). Courthouse III, LLC will be constructing two 8,000 square foot buildings on the property. They are currently working with a prospect to occupy 4,000 square feet of the first building while occupying the rest of the building themselves.

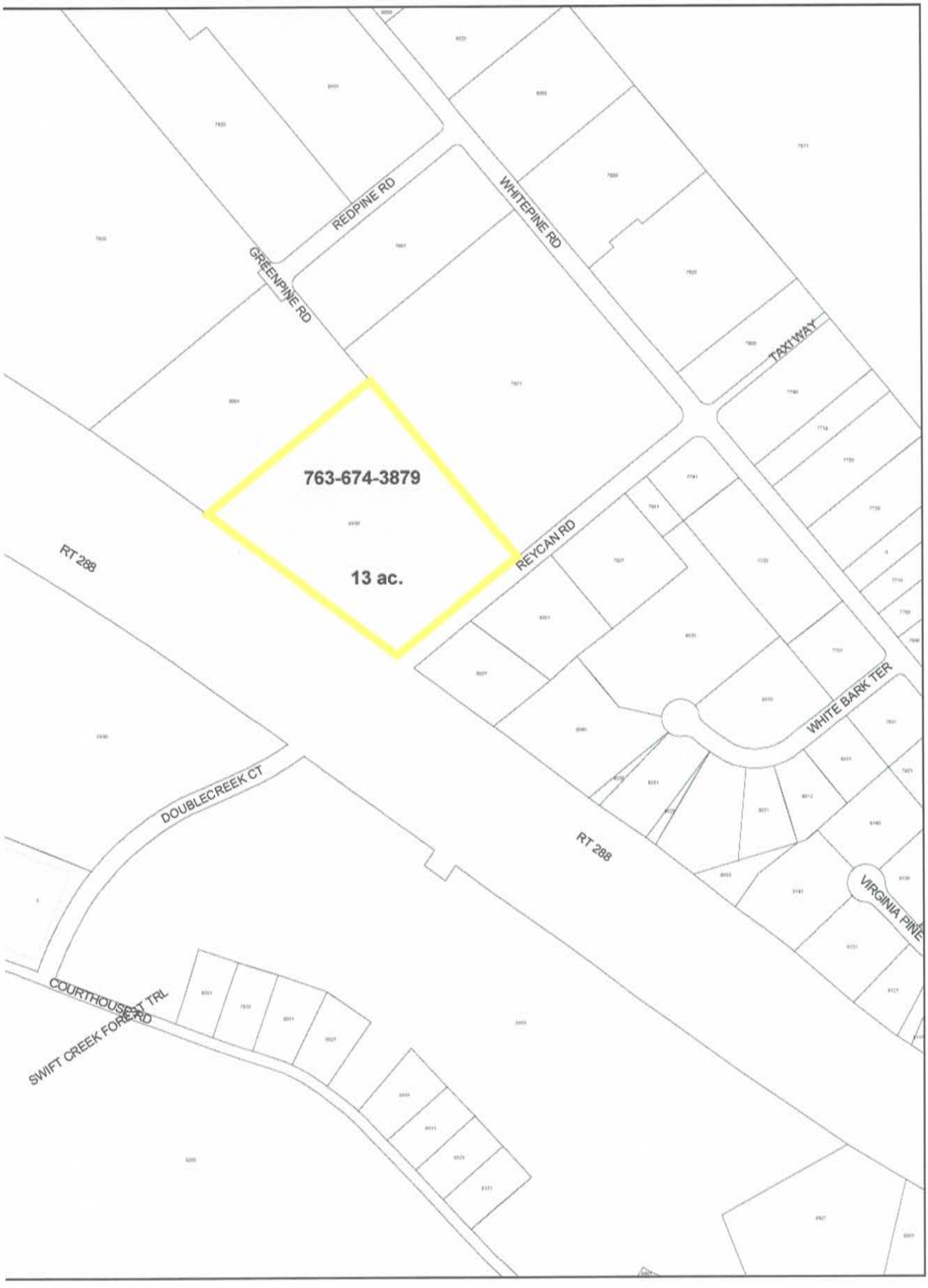
The Option Agreement for the remaining approximately 6.3 acres of the property will remain in effect and expire on the 31st of January 2009. Staff recommends that the County Administrator be authorized to convey the parcel pursuant to the terms of the Option Agreement.

Preparer: E. Wilson Davis, Jr. Title: Director, Economic Development

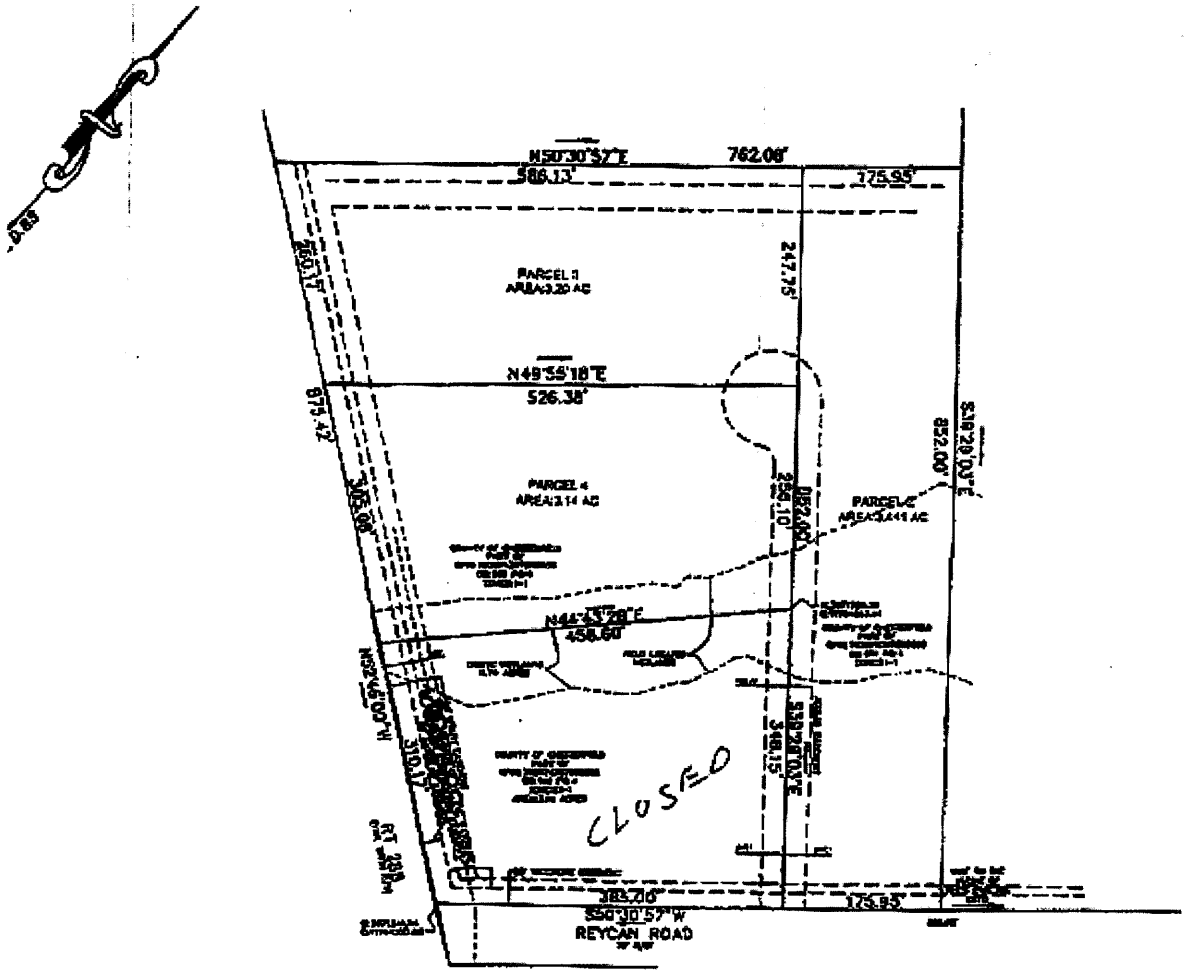
0623:76453.1

Attachments: ■ Yes ☐ No

000075


763-674-3879
13 ac.
REDPINE RD
GREENPINE RD
WHITEPINE RD
TAXIWAY
REYCAN RD
RT 288
WHITE BARK TER
DOUBLECREEK CT
RT 288
VIRGINIA PINE
COURTHOUSE CT TRL
SWIFT CREEK FOREST RD

000076



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

MAP SHOWING 12.93 ACRES OF LAND SITUATED ON THE NORTHERN LINE OF REYCAN ROAD, LOCATED IN THE CHESTERFIELD COUTY INDUSTRIAL PARK SECTION B, CHESTERFIELD CO., VA. DALE DISTRICT

KLF ENGINEERING & SURVEYING

DATE:

JOB NO.:

KEVIN L. FLOYD, P.E., L.S.
P.O. BOX 1178
Chesterfield, Virginia 23832
Phone : (804) 778-4518

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.B.

Subject:

Public Hearing to Consider FY2009 Enhancement Projects

County Administrator's Comments:

County Administrator: _____

Board Action Requested: Hold a public hearing to consider FY09 Enhancement Projects; approve the FY09 Enhancement Priority Project list and forward to area Metropolitan Planning Organizations (MPOs); adopt resolutions of support for the projects; and authorize the County Administrator to enter into agreements for the projects.

Summary of Information: The Virginia Department of Transportation (VDOT) Enhancement Program is intended to creatively integrate transportation facilities into the surrounding communities and the natural environment. Projects eligible for funding include pedestrian and bicycle facilities; pedestrian and bicycle educational/safety activities; scenic easement/ historic site acquisition; scenic/historic highway programs; landscaping; historic preservation; rehabilitation and operation of historic transportation buildings or facilities; preservation of abandoned railroad corridors/conversion to trails; inventory/control/removal of outdoor advertising; archaeological planning and research; mitigation of water pollution and wildlife protection; and establishment of transportation museums.

In FY08, $17 million was available statewide for VDOT to carry out the program. The county did not receive any Enhancement funding for FY08. Transportation Enhancement Projects are financed with 80% VDOT funds and a minimum 20% local match. The local match is usually provided from county funds, from other sources, and/or by in-kind contributions. VDOT staff will evaluate project applications and make a recommendation to the Commonwealth Transportation Board for inclusion in the FY09-FY14 Virginia Transportation Six-Year Improvement Program.

Preparer: R.J. McCracken Title: Director of Transportation

Agen669

Attachments: ■ Yes ☐ No

000078

Summary of Information: *(continued)*

The proposed FY09 Enhancement Projects list (see Attachment A) reflects two changes from last year's list: 1) Falling Creek Bridge Restoration project was added and 2) Chesterfield Avenue Sidewalk Rehabilitation project was added.

The Board should confirm support for the priority enhancement projects by adopting a resolution of support, which guarantees the county will provide the local match. If approved and funded by VDOT, staff will prepare another agenda item requesting appropriation of the required match. The amounts for the local match, totaling $402,000, are as follows: Falling Creek Bridge Restoration Project ($192,000), Genito Road Streetlights ($10,000), Cogbill Road Sidewalk, Phase I ($85,000), Chesterfield Avenue Sidewalk Rehabilitation ($40,000) and Walton Park Sidewalk, Phase II ($75,000).

Enhancement projects are required to have endorsement from area Metropolitan Planning Organizations (MPOs). The project list, as approved by the Board, should be forwarded to the Richmond MPO.

The Genito Road Streetlight project will require the county to bear the operating expense associated with the lights (approximately $7,000 per year).

Recommendation: Staff recommends the Board take the following actions:

1. Approve the proposed FY09 Enhancement Project list (Attachment A), and forward it to the Richmond Metropolitan Planning Organization for endorsement;

2. Adopt the attached resolutions requesting VDOT approval and guaranteeing the local match for the projects. NOTE: If projects are approved and funded by VDOT, staff will return to the Board with an identified source for the required match, up to a total of $402,000.

3. Authorize the County Administrator to enter into agreements between VDOT/county/consultant/contractor, for design, environmental permit, right-of-way acquisition, and/or construction agreements, acceptable to the County Attorney, for projects approved by VDOT.

District: Countywide

Meeting Date: October 10, 2007

Budget and Management Comments:

This item requests that the Board schedule a public hearing to consider projects that could potentially be included in the VDOT road enhancement project program.

If project funds are approved from VDOT, staff will present a subsequent agenda item to identify a source of funds for the required local match.

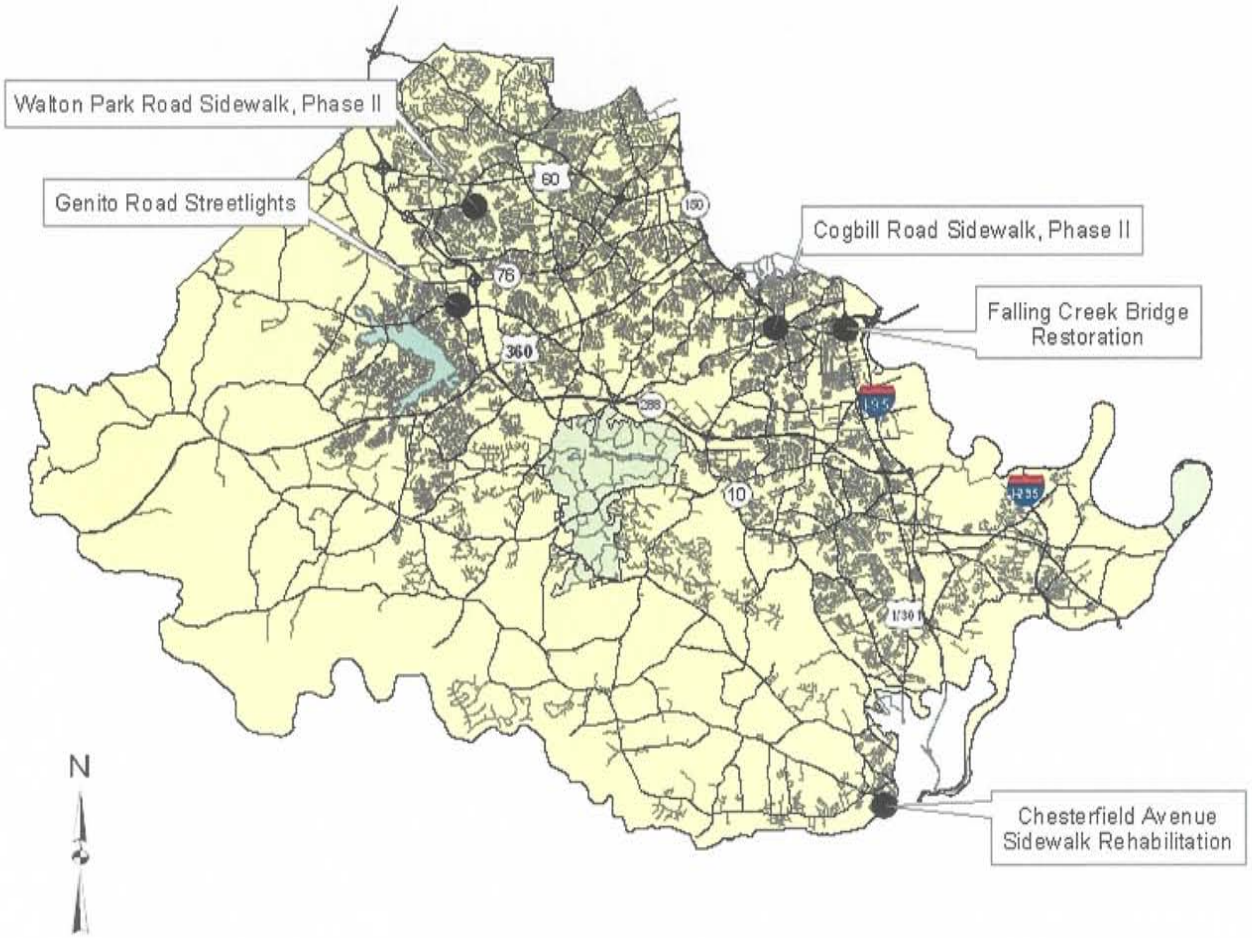
Preparer: Allan M. Carmody **Title:** Director, Budget and Management

CHESTERFIELD COUNTY
PROPOSED FY09 ENHANCEMENT PROJECTS

	Funding Request	Local Match Transfers
Falling Creek Bridge Restoration	$960,000	$192,000
Genito Road Streetlights (Fox Chase Ln to Watercove Rd)	$50,000	$10,000
Cogbill Road Sidewalk (Meadowbrook HS to Meadowdale Library), Phase II of a $1.2M project	$425,000	$85,000
Chesterfield Avenue Sidewalk Rehabilitation	$200,000	$40,000
Walton Park Road Sidewalk, located between N Woolridge Rd & Queensgate Rd, Phase II of a $1.1M project	$375,000	$75,000

Attachment A

Chesterfield County
Proposed FY09 Enhancement Projects



Attachment B

9-30-07
v:\tm files\e109\agenda map

WHEREAS, in accordance with the Commonwealth Transportation Board (CTB) construction allocation procedures, it is necessary that the local governing body request, by resolution, approval of a proposed enhancement project.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Chesterfield County requests the CTB establish a project for the restoration of the Falling Creek Bridge on Jefferson Davis Highway

BE IT FURTHER RESOLVED, that the Board hereby agrees to pay 20 percent of the total estimated cost of $960,000 for planning, design, right-of-way, and construction of the Falling Creek Bridge Restoration Project, and that, if the Board subsequently elects to unreasonably cancel this project, the County of Chesterfield hereby agrees that the Virginia Department of Transportation will be reimbursed for the total amount of the costs expended by the Department through the date the Department is notified of such cancellation.

WHEREAS, in accordance with the Commonwealth Transportation Board (CTB) construction allocation procedures, it is necessary that the local governing body request, by resolution, approval of a proposed enhancement project.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Chesterfield County requests the CTB establish a project for the installation of streetlights along Genito Road from Fox Chase Lane to Watercove Road.

BE IT FURTHER RESOLVED, that the Board hereby agrees to pay 20 percent of the total estimated cost of $50,000 for planning, design, right-of-way, and construction of the Genito Road Streetlight Project, and that, if the Board subsequently elects to unreasonably cancel this project, the County of Chesterfield hereby agrees that the Virginia Department of Transportation will be reimbursed for the total amount of the costs expended by the Department through the date the Department is notified of such cancellation.

WHEREAS, in accordance with the Commonwealth Transportation Board (CTB) construction allocation procedures, it is necessary that the local governing body request, by resolution, approval of a proposed enhancement project.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Chesterfield County requests the CTB establish a project for Phase II of the Cogbill Road Sidewalk Project from Meadowbrook High School to Meadowdale Branch Library.

BE IT FURTHER RESOLVED, that the Board agrees to pay 20 percent of the total estimated cost of $425,000 for planning, design, right-of-way, and construction of Phase I of the Cogbill Road Sidewalk Project from Meadowbrook High School to Meadowdale Branch Library, and that, if the Board subsequently elects to unreasonably cancel this project, the County of Chesterfield hereby agrees that the Virginia Department of Transportation will be reimbursed for the total amount of the costs expended by the Department through the date the Department is notified of such cancellation.

WHEREAS, in accordance with the Commonwealth Transportation Board (CTB) construction allocation procedures, it is necessary that the local governing body request, by resolution, approval of a proposed enhancement project.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Chesterfield County requests the CTB establish a project for the rehabilitation of sidewalk on Chesterfield Avenue.

BE IT FURTHER RESOLVED, that the Board agrees to pay 20 percent of the total estimated cost of $200,000 for planning, design, right-of-way, and construction of Chesterfield Avenue Sidewalk Rehabilitation Project, and that, if the Board subsequently elects to unreasonably cancel this project, the County of Chesterfield hereby agrees that the Virginia Department of Transportation will be reimbursed for the total amount of the costs expended by the Department through the date the Department is notified of such cancellation.

WHEREAS, in accordance with the Commonwealth Transportation Board (CTB) construction allocation procedures, it is necessary that the local governing body request, by resolution, approval of a proposed enhancement project.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Chesterfield County requests the CTB establish a project for Phase II of Walton Park Road Sidewalk Project located between North Woolridge Road and Queensgate Road.

BE IT FURTHER RESOLVED that the Board hereby agrees to pay 20 percent of the total estimated cost of $375,000 for planning, design, right-of-way, and construction of Phase II of the Walton Park Road Sidewalk Project, and that, if the Board subsequently elects to unreasonably cancel this project, the County of Chesterfield hereby agrees that the Virginia Department of Transportation will be reimbursed for the total amount of the costs expended by the Department through the date the Department is notified of such cancellation.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.C.

Subject:

Public Hearing to Consider an Amendment to Substantial Accord Determination

County Administrator's Comments:

County Administrator:

Board Action Requested:

Staff is requesting the Board of Supervisors to approve the attached Code Amendment.

Summary of Information:

Substantial Accord Determination with the Comprehensive Plan is required prior to construction of a public facility. The prior administrative policy allowed the Planning Director to make an administrative determination of plan compliance with confirmation by the Planning Commission. This procedure did not require notice of any area property owners.

The Planning Commission expressed a desire to amend the administrative policy to require public hearing and hence notice to area property owners. The County Administration has amended that policy accordingly (attached).

As a result of that modification the Planning Commission on August 21, 2007 recommended the attached Code Amendment to clarify that public hearings are required.

Preparer: Kirkland A. Turner Title: Director of Planning

Attachments: ■ Yes ☐ No

000088

CHESTERFIELD COUNTY
ADMINISTRATIVE POLICIES AND PROCEDURES

Department: Planning
Subject: Substantial Accord Policy for Public Facilities

Policy Number: 10-1
Supersedes: 11/15/02
Date Issued: _____/07

I. PURPOSE

The purpose of this policy is to assure that certain proposed facilities, such as those described below, are "substantially in accord" with the Chesterfield County Comprehensive Plan. This authority is found in the County Charter and the Code of Virginia. By establishing this procedure, the Substantial Accord Policy promotes coordinated planning in the siting of public facilities and maintains compatible land use patterns, thereby further improving the County's ability to provide effective and cost efficient services to the public.

II. DEFINITION OF A PUBLIC FACILITY

Public areas, facilities and uses (hereinafter referred to collectively as "Public Facilities") include, but are not limited to, streets, parks or other public areas and connections thereto, public buildings or structures, public utility facilities and public service corporation facilities, whether such areas, facilities or uses are publicly or privately owned; provided, however, that such terms do not include railroad facilities; electrical transmission lines of 150 kilovolts or more subject to review and approval by the Virginia State Corporation Commission; public telecommunication facilities subject to review and approval by the Virginia Public Telecommunications Board; or public facilities constructed by the State or Federal government.

III. GENERAL RULE

Except as stated herein, no street or connection to an existing street, park or other public area, public building or public structure, public utility facility or public service corporation facility other than a railroad facility, whether publicly or privately owned, shall be constructed, established or authorized unless it is first determined to be substantially in accord with the County's adopted Comprehensive Plan or element thereof (i.e., *Plan for Chesterfield, Public Facilities Plan*, the *Thoroughfare Plan* and Countywide special plans).

IV. FACILITIES EXCEPTED FROM SUBSTANTIAL ACCORD REVIEW

A. **Public Roads** – Public roads, which are identified within, but not the entire subject of submission of a subdivision plat or site plan submission to be constructed in accordance with the construction and design standards contained within the Chesterfield County Subdivision or Zoning Ordinance, are excepted from the requirement of a substantial accord determination.

B. **Public Facilities Required as a Condition of Zoning** – A Public Facility which has been approved by the Board of Supervisors through acceptance or imposition of a zoning condition and which is identified within, but is not the entire subject of, a subdivision plat or site plan submission is excepted from the requirement of a substantial accord determination.

C. **Board Approved Public or Private Facility** – Any public or private public facility which has been approved by the Board of Supervisors following a public hearing held pursuant to the County's Zoning Ordinance so long as such public or private facility or use remains subject to the requirements of the Zoning Ordinance.

D. **Service Extensions and Repairs** – Paving, repair, reconstruction, improvement, drainage or similar work and normal service extensions of public utilities or public service corporations are excepted from the requirement of a substantial accord determination unless involving a change in location or extent of a street or public area.

E. **Projects not Involving Substantial Change in Scale of Existing Facility** – Improvements to Public Facilities at existing, approved sites which are necessary to the primary site purpose and which do not involve a significant change in scale or level of facility service are excepted from the requirement of a substantial accord determination. Such excepted projects may include building additions, replacement, upgrade, or phased completion of a facility complex. However, if a facility is to be added to an existing site, which expands the level of service beyond the original site purpose, such a project will not be excepted from the requirement of a substantial accord determination. For example, a regional size swimming pool proposed at an existing neighborhood park will require substantial accord approval.

F. **Railroads; Electrical Transmission Lines; Public Television and Radio** – Railroad facilities; electrical transmission lines of 150 kilovolts or more subject to review and approval by the Virginia State Corporation Commission; and public telecommunication facilities subject to review and approval by the Virginia Public Telecommunications Board are excepted from the requirement of a substantial accord determination.

G. **State and Federal Facilities** – Public Facilities constructed by the State or Federal Government are excepted from the requirement of a substantial accord determination.

V. SUBSTANTIAL ACCORD APPLICATION

A. **Pre-Application Conference** – Prior to making an application for Substantial Accord Determination, an applicant or their agent shall have a pre-application conference with the Planning Department and other co-reviewing agencies.

B. **Applications for Substantial Accord Determinations** – With respect to any proposed Public Facility, a request for substantial accord determination must be made on an application form supplied by the Planning Department. The persons entitled to initiate an application are identified in the zoning ordinance. However, any application initiated by the Director of a County Department or Office must first obtain approval from the County Administrator or his designee.

The Director of Planning shall promptly examine all applications to determine whether they are in proper form, and shall advise the applicant of the date on which his application was accepted for review, or what further information is required to constitute a satisfactory application. A request for a substantial accord determination shall not be deemed to have been made until all required information is received by the Planning Department.

C. **Fee** – The cost of processing each request as required by the Zoning Ordinance shall be paid simultaneously with the filing of the application. Chesterfield County departments, with the exception of enterprise funded departments and the school board, will not be required to pay this fee.

VI. SUBSTANTIAL ACCORD DETERMINATION PROCEDURE

A. **Review by the Director of Planning**—Upon receipt of an application for a substantial accord determination, the Director of Planning shall analyze the general location, character and physical extent of the proposed public facility in light of the adopted elements of the County's Comprehensive Plan, including the *Thoroughfare Plan* and the *Public Facilities Plan.*

The Director of Planning shall examine the siting and planning criteria contained in those

documents and shall solicit comments from relevant co-reviewing agencies. The Director of Planning shall then make a recommendation to the Planning Commission regarding compliance with the County's Compliance Plan.

B. **Consideration by the Planning Commission**

1 **Public Hearing** – The Commission shall consider the general location, character and physical extent of the proposed Public Facility in relation to the adopted elements of the County's Comprehensive Plan and siting criteria contained in such documents. In addition, the Commission shall hold a public hearing and consider public comments and other relevant factors in arriving at its substantial accord determination, which may be conditional.

2 Failure of the Planning Commission to approve or disapprove a request for a substantial accord determination within sixty (60) days from receipt of proper application in the Planning Department, unless such time is extended by the Board of Supervisors or the applicant requests a deferral, shall be deemed approval by the Commission. Subject to any contrary instructions from the Board of Supervisors, and time permitting, the Commission may defer any request to a subsequent meeting.

VII. NOTIFICATION OF COMMISSION'S DECISION

The Director of Planning shall promptly file with the Clerk of the Board of Supervisors a written report of each substantial accord determination made by the Planning Commission indicating whether the Commission approved or disapproved such request and the reasons therefore. The Director of Planning shall also promptly notify the applicant of the decision of the Planning Commission.

VIII. APPEALS BY THE APPLICANT

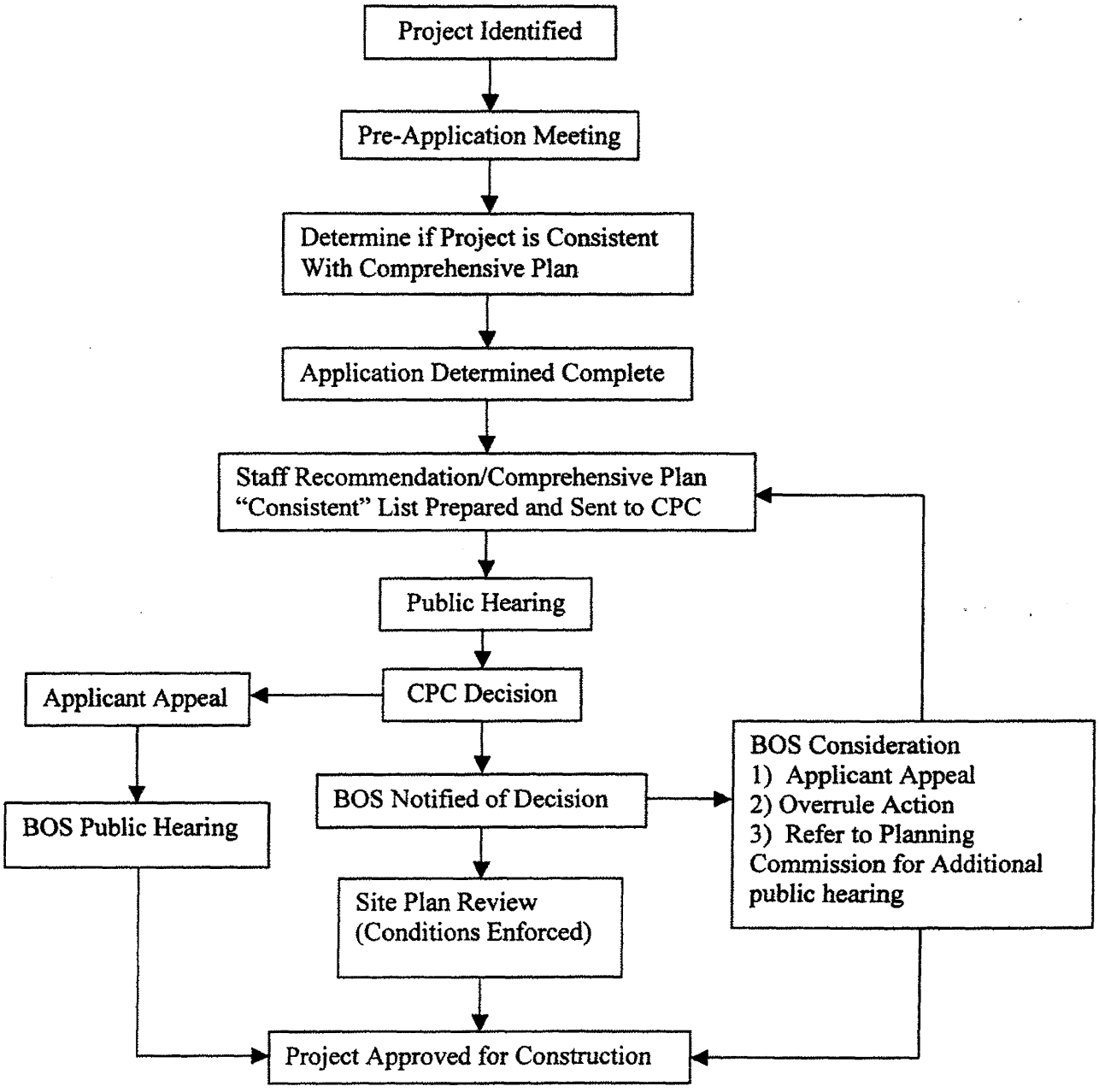
The applicant may appeal the decision of the Planning Commission by filing with the Director of Planning within ten (10) days following the Commission's decision a written petition to the Board of Supervisors setting forth the reasons for the appeal. Any appeal by the applicant to the Board of Supervisors must be heard and determined by the Board within sixty (60) days from the date of its filing.

IX. REVIEW BY THE BOARD OF SUPERVISORS

By a majority vote of its members, the Board of Supervisors may overrule a substantial accord determination made by the Planning Commission, or refer the matter back to the Planning Commission directing that an additional public hearing be held, after notice as required by the County Code, and a new determination be made within a specified time period.

ATTACHMENT I

SUBSTANTIAL ACCORD DETERMINATION PROCESS
CHESTERFIELD COUNTY



AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY AMENDING AND RE-ENACTING SECTIONS 19-5, 19-6, 19-24, 19-25 and 19-301 OF THE ZONING ORDINANCE RELATING TO SUBSTANTIAL ACCORD DETERMINATIONS

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Sections 19-5, 19-6, 19-24, 19-25 and 19-301 of the Code of the County of Chesterfield, 1997, as amended, is amended and re-enacted to read as follows:

Sec. 19-5. Enforcement.

(a) (1) *General Enforcement Duties of Director of Planning.*

ooo

(2) *Enforcement of conditions.* The director of planning shall administer and enforce conditions attached to zoning approvals~~,~~ and development approvals ~~and substantial accord approvals for which a public hearing does not occur~~ and he shall have the authority to: issue a written order to remedy any noncompliance with a condition; bring legal action, including injunction, abatement or other appropriate action, to insure compliance with such conditions; and require a guarantee, in a form satisfactory to the county attorney, and in an amount sufficient for and conditioned upon the construction of any physical improvements required by the condition, or a contract for the construction of such improvements and the contractor's guarantee, in like amount and so conditioned, which guarantee shall be reduced or released by the county, upon the submission of satisfactory evidence that construction of such improvements has been completed in whole or in part. Failure to meet all conditions shall constitute cause to deny the issuance of any of the required occupancy or building permits.

(b) *Penalties for violation; right of entry.*

(1) Any person who violates this chapter or fails to comply with any conditions of zoning and development approvals ~~and substantial accord approvals for which a public hearing does not occur,~~ other than those provisions set forth in section 19-6, shall be deemed guilty of a misdemeanor and upon conviction thereof, shall be fined not less than $10.00 and not more than $1,000.00.

ooo

(5) If the director of planning determines that any person has violated this chapter or failed to comply with any condition of a zoning or development approval ~~or of a substantial accord approval for which a public hearing does not occur,~~ then he shall serve upon that person a notice to comply by either:

a. Delivering the notice to the person by hand; or
b. Mailing the notice by first class mail to the last known address of the person.

The notice shall set forth the nature of the violation or failure to comply. Upon failure of the person to remedy the violation, comply with the condition or receive an extension within ten days after the date of delivery or mailing of the notice, the person shall be subject to the penalties set forth above. With respect to violations or failures to comply involving portable signs or the parking or display of motor vehicles, the person shall remedy the violation or comply with the condition within 24 hours of service of the notice or receive an extension, or the person shall be subject to the penalties above.

Sec. 19-6. Civil penalties for certain violations.

(a) Any violation of the following provisions shall be punishable by a civil penalty of not more than $100.00 for the initial summons and not more than $250.00 for each additional summons:

(1) Operation of a business that is not a home occupation, on a lot or parcel inside or outside of a dwelling unit or accessory building, in any R, R-TH, R-MF or A district, without a special exception or conditional use.

(2) Violation of any condition of zoning and development approvals and substantial accord approvals ~~for which a public hearing does not occur~~ that relates to the hours of operation of the use of land or that relates to reduction or control of noise from the use of land.

ooo

Sec. 19-24. Applications.

(a) (1) Any application for zoning approval ~~(except substantial accord),~~ or modification to development standards or requirements, may be initiated by resolution of the board of supervisors; by motion of the planning commission; or by petition of the property owner, contract purchaser with the property owner's written consent, or the property owner's agent, with the property owner's written consent. An application for substantial accord of a County facility may also be initiated by the Director of any County Department or County Office and by School Board administration with the approval of the School Board.

ooo

(c) Each application shall have attached a list of names and addresses of all persons owning any adjacent property to include property across any street, road, railroad right-of-way, body of water or political boundary. In addition, if the property is

situated at or within 100 feet of the intersection of any two or more roads or highways or within 100 feet of the intersection of the right-of-way of any two railroads, the names and addresses of all property owners situated at all corners of the intersection shall be furnished. The information shall be obtained from the assessor's records.

(d) Any applicant, other than one seeking to modify development standards or requirements, shall furnish the following information:

(1) A list of the names and addresses of all persons owning any legal or equitable interest in the real property which is the subject of the application or petition as a title owner, lessee, easement owner, contract purchaser, assignee, optionee, licensee or noteholder, including trustees, beneficiaries of trusts, general partners, limited partners and all other natural or artificial persons owning any such interest; however, the names and addresses of governmental entities and public service companies owning recorded easements over the subject property need not be disclosed.

(2) If any of the persons disclosed under section 19-24(d)(1) is a corporation, then the application shall also list the names and addresses of any shareholders who own ten percent or more of any class of stock issued by such corporation and, if such corporation has ten or fewer shareholders, a list of the names and addresses of all the shareholders. If any of the persons disclosed under section 19-24(d)(1) is a partnership, joint venture, trust or other artificial person other than a corporation, then the application shall also list the names and addresses of any persons having any interest therein equal to ten percent or more of the total of all such interests and, if ten or fewer persons own all such interests, a list of the names and addresses of all such persons. For any corporation, partnership, joint venture, trust or other artificial person whose owners are unknown to the applicant and whose identities cannot be ascertained by the exercise of due diligence and for any corporation that has more than 100 shareholders or whose stock is regularly traded on a stock exchange or in the over the counter market, the applicant may so certify in lieu of providing a list of its stockholders or other persons having an interest therein.

ooo

Sec. 19-25. Fees.

The following fees, which include the costs of hearings, advertisements and notices when required, shall be deposited simultaneously with the filing of the application:

ooo

(k) Substantial accord determinations:
(1) Existing zoning R, R-TH, R-MF, MH or A classification~~:~~...3,100.00

~~a. Planning commission hearing . . . 3,100.00~~
~~b. Administrative determination . . . 450.00~~

(2) Existing zoning O, I or C classification: 1,540.00
~~a. Planning commission hearing . . . 1,540.00~~
~~b. Administrative determination . . . 240.00~~

ooo

Sec. 19-301. Definitions.

For the purposes of this chapter, the following words and phrases shall have the following meanings:

ooo

Substantial accord: A determination pursuant to Va. Code §15.2-2232, the County's Charter and the County's Substantial Accord Policy that certain proposed public features, uses areas, structures and facilities are substantially in accord with the County's Comprehensive Plan.

Zoning approval: Includes conditional use, conditional use planned development, conditional zoning, variance, special exception, substantial accord ~~for which a public hearing occurs~~, mobile home permit and rezoning approvals.

(2) That these ordinances shall become effective immediately upon adoption.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.D.

Subject:

Public Hearing to Consider the Upper Swift Creek Plan Amendment and Companion Ordinance Amendments

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Staff is requesting that the Board of Supervisors adopt the Upper Swift Creek Plan amendment and companion ordinance amendments.

Summary of Information:

At a Board of Supervisors meeting on August 22, 2007, the Board deferred the Upper Swift Creek Plan amendment and companion ordinance amendments to October 10, 2007.

Preparer: Kirkland A. Turner Title: Director of Planning

Attachments: ■ Yes ☐ No

000097

Chesterfield County, Virginia

Memorandum

DATE: OCTOBER 1, 2007

TO: THE HONORABLE MEMBERS OF THE BOARD OF SUPERVISORS

FROM: KIRKLAND A. TURNER, DIRECTOR OF PLANNING

SUBJECT: UPPER SWIFT CREEK PLAN AMENDMENT AND ASSOCIATED ORDINANCE AMENDMENTS

In anticipation of your October 10, 2007, public hearing, please find attached the Upper Swift Creek Plan amendment and supporting documents, together with the associated ordinance amendments. Specifically, attached are the following:

- The Upper Swift Creek Plan amendment, together with supporting documentation regarding the land use, transportation and water quality recommendations of the Plan amendment. Some of the background information is briefly summarized in the draft Plan document under the heading: 'Summary of Key Findings and Recommendations'.

- Amendments to the Subdivision and Utility Ordinances requiring mandatory water and wastewater connections for areas of the Plan geography suggested for uses other than deferred growth. These amendments are similar to those previously adopted for other areas of the county and would implement Land Use Goal 1, Recommendation C of the proposed plan amendment.

- Amendments to the Subdivision and Utility Ordinances prohibiting water and wastewater connections with the deferred growth area. These amendments would implement Land Use Goal 1, Recommendation B of the proposed plan amendment.

- Amendments to the Subdivision and Zoning Ordinances increasing buffers along arterial roads for residentially zoned properties within the Upper Swift Creek Plan amendment geography, from fifty (50) feet to 200 feet. These amendments would implement Land Use Goal 4, Recommendation B of the proposed plan amendment.

- Amendment to the Zoning Ordinance to reduce phosphorous loading for development withing the Upper Swift Creek Watershed. Vested developments would not be affected.

If you have any questions, please feel free to contact Jimmy Bowling by phone at 748-1086, or by email at bowlingj@chesterfield.gov.

Blank page

Chesterfield County, Virginia

Memorandum

DATE: AUGUST 10, 2007

TO: THE HONORABLE MEMBERS OF THE BOARD OF SUPERVISORS

FROM: KIRKLAND A. TURNER, DIRECTOR OF PLANNING

SUBJECT: UPPER SWIFT CREEK PLAN AMENDMENT AND ASSOCIATED ORDINANCE AMENDMENTS – PLANNING COMMISSION RECOMMENDATIONS

On July 25, 2007, you set a public hearing for August 22, 2007, to consider the Upper Swift Creek Plan amendment and associated ordinance amendments. In anticipation of your August public hearing, the following summary of the Planning Commission's recommendations is provided.

The Planning Commission, at a public hearing on July 19, 2007, made the following recommendations.

Planning Commission recommendations – Upper Swift Creek Plan amendment

The Commission recommended the following amendments to the Plan (see detailed language on pages 2 and 3):

- Amendment to the Plan to provide level of service standards for roads
- Amendment to the Plan to provide level of service standards for public schools.
- Amendment to the Plan relative to the Plan amendment to allow additional commercial uses for properties located on the south side of Route 360, between Route 288 and Winterpock Road between the AT&T Easement and Route 360, provided there is a buffer between commercial and residential uses

The Planning Commission then recommended denial of the Upper Swift Creek Plan amendment.

Planning Commission recommendations – associated ordinance amendments

The Commission recommended the following:

- **Approval** of amendments to the Subdivision and Utility Ordinances requiring mandatory water and wastewater connections for areas of the Plan geography suggested for uses other than deferred growth.
- **No recommendation** on amendments to the Subdivision and Utility Ordinances prohibiting water and wastewater connections with the deferred growth area.
- **Denial** of amendments the Subdivision and Zoning Ordinances increasing buffers along arterial roads for residentially zoned properties.
- **Denial** of an amendment to the Zoning Ordinance relating to water quality.

Detailed Language

Following is the language of the Planning Commission's recommended amendments to the Plan:

Transportation —Recommendation A (page 11)
All rezoning applications are expected to pass a test for Adequate Road Facilities. A proposed rezoning does not pass the test for Adequate Road Facilities if the nearest major road and/or existing signalized intersection that will carry the majority of the traffic expected to be generated by the future development on the property proposed to be rezoned will have a Level of Service ("LOS") of "E" or "F". The LOS shall be determined by the Chesterfield Department of Transportation or designee based on current traffic studies and other reliable traffic data. Further, a proposed rezoning will pass the test for Adequate Road Facilities only if roads to be impacted by the proposed development have adequate shoulders, or where roads with inadequate shoulders are carrying, or are projected to carry, less than 4,000 vehicles per day.

Goals and Recommendation - Schools (Insert on page 22 after Water Quality Recommendations)
School Goal: Provide adequate facilities to relieve overcrowding and to respond to new growth. Recommendation -

a. All residential rezoning applications are expected to pass the test for Adequate School Facilities. A proposed residential rezoning will pass the test for Adequate School Facilities if all public elementary, middle and high schools that would serve the future development on the property proposed for residential rezoning currently have adequate capacity to accommodate additional students to be generated by the proposed rezoning. Schools shall be responsible for determining 1) the current enrollment for each school; 2) the capacity of each school; and 3) the anticipated impact of the proposed development based on the maximum number and type of residential dwelling units or lots, including proffers for limited or delayed development.

b. If any of the applicable public schools which would serve the future residential development on the subject property exceed 120% of capacity at the time of the review of the subject rezoning request, the proposed rezoning does not pass the test for Adequate School Facilities. In addition, the proposed rezoning will not pass the test for Adequate School Facilities if the anticipated enrollment at any school to serve the subject rezoning will exceed 120% of capacity upon the development of 1) the property proposed for rezoning; and 2) all unimproved residential lots in the service area shown on approved preliminary site plans, preliminary subdivision plans and construction plans.

c. When the capacity of any public school in the service area is determined to exceed 120% under the conditions described above, and where such school is expected to be improved to less than 120% of capacity within one year of the date that the Board of Supervisors is scheduled to consider the subject rezoning request, the residential rezoning will pass the test for Adequate School Facilities.

Land Use Plan map:
On the south side of Route 360 (between Route 288 and Winterpock Road) Commercial uses including neighborhood convenience, retail, restaurant and personal service uses are appropriate for properties between the AT&T easement and Route 360 provided there is a buffer between the Commercial and Residential uses.

If you have any questions, please feel free to contact Jimmy Bowling by phone at 748-1086, or by email at bowlingj@chesterfield.gov.

Blank page

Upper Swift Creek Plan (Proposed)

A proposed amendment to the Upper Swift Creek Plan, first adopted by the Chesterfield County Board of Supervisors on February 13, 1991.

Status of This Proposed Amendment

Version: Proposed plan amendment recommended by Planning, Transportation and Environmental Engineering Department staff as of *April 3, 2007*.

This is a proposed amendment to the *Upper Swift Creek Plan*, first adopted by the Chesterfield County Board of Supervisors on February 13, 1991, then amended by the Board on March 15, 2000.

The supporting documents referenced in this plan are not part of the plan and will not be published in the *Plan for Chesterfield*, but will be available through other sources.

For more information on the status of the proposed Upper Swift Creek Plan, see the Planning Department website at www.chesterfield.gov/plan or contact project manager Jim Bowling at Bowlingj@chesterfield.gov or 804/748-1086.

Note: This section will be removed from the plan upon adoption

---

Summary of Key Findings and Recommendations

- **Balanced, Orderly Growth**: The proposed *Upper Swift Creek Plan* balances the demand for residential, commercial and industrial growth in the Upper Swift Creek watershed with a recommended orderly development pattern based on three important concepts: a deferred growth area in the northwestern part of the planning area, mandatory utilities extension ordinances for development outside the "deferred growth" area, and a prohibition on extending utilities into the deferred growth area.
- **Economic Development:** The proposed *Upper Swift Creek Plan* encourages economic development by recommending that many areas along Hull Street Road and around interchanges be reserved primarily for employment and other revenue generating uses.
- **Residential Development Potential:** Analysis undertaken in the development of this plan identified 16,186 dwellings in the planning area as of December 31, 2006, and projected that about 15,256 additional dwellings could be built on vacant land already zoned for development as of that date. This same analysis projected total residential build out for the planning area at about 51,094 dwellings under the 1991 *Upper Swift Creek Plan*, and about 43,434 dwellings under this new plan (not including any subsequent development in the recommended deferred growth area, other than the suggested development recommended by this plan).
- **Unzoned Land Recommended For Residential Development:** Under this new plan, only about 11 percent (4,956 acres) of the total parcel acreage within the Upper Swift

Creek watershed remains vacant and agriculturally zoned, but recommended for development.

- **Deferred Growth:** This area, which totals about 4,900 acres, is recommended for primarily very low-density (non-subdivision) uses, with other types of development deferred until the plan is amended through a subsequent review.
- **Water Quality:** The plan recommends future land uses and initiatives that, combined with established and planned best management practices, are projected to result in Swift Creek Reservoir phosphorous levels not exceeding the established 0.05 milligrams per liter standard.
- **Transportation:** This plan identifies transportation needs and recommends modifications to the county's *Thoroughfare Plan*.
- **Forested Views:** This plan promotes protection of scenic resources by recommending consideration of ordinance amendments to increase buffering along arterial roads.
- **Mandatory Utilities Extension**: The plan recommends that the utilities extension policy recommended by the 1991 *Upper Swift Creek Plan* be made mandatory through the adoption of county ordinances to require water and wastewater system connections for most types of development.

I. Introduction

In April of 2003, the Chesterfield County Board of Supervisors asked County staff to undertake a review of the adopted *Upper Swift Creek Plan* in response to concerns regarding the impact of growth on infrastructure, water resources, and the environment. In particular, development trends within the planning area generated interest in reviewing recommendations of the plan, first adopted in 1991.

The *Upper Swift Creek Plan* is a tool that the county can use to shape the pace and pattern of development within the plan geography over time. Other tools are needed to address present, or near-term, growth issues. The plan also implements, updates, and refines selected recommendations of the 1991 plan based on what the county has learned and the area has experienced since that plan's adoption.

The 1991 *Upper Swift Creek Plan* had as its goals:

1. Maintenance of Swift Creek Reservoir's water quality.
2. Balance between residential and commercial growth.
3. Conservation of environmental and aesthetic resources.
4. Variety of housing types and opportunities.
5. Provision of high quality, yet efficient public facilities.
6. Phased growth
7. Access to both active and passive recreational opportunities.

The 1991 plan pursued these goals with recommendations for land use, phasing of development and public facilities. The county has subsequently implemented many of these goals through ordinance (such as the Historic Districts, Landmarks and Landmark Sites Ordinance, the Chesapeake Bay Preservation Areas Ordinance, and the Upper Swift Creek

Watershed Ordinance), through amendments to other elements of the comprehensive plan (such as the *Water Quality Plan* and the *Public Facilities Plan*) and by using the adopted *Upper Swift Creek Plan* as a guide in the zoning process.

The *Upper Swift Creek Plan* amendment, as outlined herein, continues and expands upon this work.

Planning Area Boundaries

The *Upper Swift Creek Plan* includes most of the geography of the 1991 *Upper Swift Creek Plan*. That small portion of the 1991 plan physically separated from the planning area by the 1998 *Route 288 Corridor Plan* is not included in the geography of this plan, but is included in the pending *Robious Area Plan*. The planning area includes most of the Upper Swift Creek watershed located within the jurisdiction of Chesterfield County.

Magisterial Districts

The *Upper Swift Creek Plan* geography lies within the Matoaca Magisterial District (about 82 percent of the planning area geography), the Clover Hill Magisterial District (about 14 percent of the planning area geography), and the Midlothian Magisterial District (about four percent of the planning area geography).

How this Plan Works

Chesterfield County's comprehensive plan, *The Plan For Chesterfield,* is used by citizens, staff, the Planning Commission and Board of Supervisors as a guide for decisions affecting the county, including, but not limited to, those regarding future land use, transportation networks and zoning actions. However, the *Upper Swift Creek Plan* represents only one part of the county's comprehensive plan. It is one of about twenty area, corridor and village plans, each of which focuses on managing and directing the future pattern of development within a specific geography of the county, taking into account the unique development pattern and development history of the area.

As any plan geography is but one part of the larger community of Chesterfield County, the needs of a specific area must be considered within the context of the needs of the county as a whole. Other components of *The Plan For Chesterfield* are countywide plans, which address issues and needs on a countywide basis. These include: the *Thoroughfare Plan,* the *Water Quality Protection Plan,* the *Public Facilities Plan,* the *Bikeway Plan and* the *Riverfront Plan*. Some of these plans, such as the *Public Facilities Plan*, require a countywide review process to determine how limited county resources should be distributed.

Background Analysis

The Planning Department, in conjunction with other county departments, assessed existing conditions and development trends within the planning area. The results were summarized and shared with public officials and interested citizens throughout early phases of the plan development process. The following assessments and analyses serve as the basis for the Goals and Recommendations of this plan, and are available for review as supporting documents, A through I.

- Supporting Document A - Upper Swift Creek Plan Amendment: Existing Conditions and Issues
- Supporting Document B - Upper Swift Creek Plan Amendment: Land Use Analysis – Residential, Office, Commercial and Industrial
- Supporting Document C – Upper Swift Creek Plan Amendment: Transportation Options
- Supporting Document D - Technical Memorandum: Upper Swift Creek Plan Total Phosphorus Loading Analysis for Planned Land Use Scenarios
- Supporting Document E – Existing Conditions, Environmental Inventory
- Supporting Document F – Assessment of Biology, Habitat and Chemistry of Streams in the Upper Swift Creek Watershed, Chesterfield County, Virginia.
- Supporting Document G – Upper Swift Creek Watershed – Riparian Buffer Analysis
- Supporting Document H – Technical Memorandum: Construction Site Sediment and Total Phosphorus Loading
- Supporting Document I – Education and Outreach Program

Citizen Participation

Planning Department staff, together with representatives of other county departments, met with area residents, community groups, property owners and businesspersons throughout the winter, spring, and summer of 2004 to discuss amending the 1991 *Upper Swift Creek Plan.* These meetings included: an education component on the comprehensive plan and its relationship to zoning, land development, and existing and future land use patterns; opportunities for citizens to share their concerns about existing development conditions and their desires for the future of their community; and opportunities for county staff to explain the limitations and opportunities, inherent in the plan amendment process, to address citizen concerns and desires.

II. A Plan for Action

The *Upper Swift Creek Plan* will help guide future development in ways that balance the interests of Chesterfield County's current and future residents, landowners, businesses and development community. Specifically, the Code of Virginia defines the primary purpose of the comprehensive plan as follows:

> To guide and accomplish a "coordinated, adjusted and harmonious development" of county lands "which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare" of county citizens.

The *Upper Swift Creek Plan* makes no attempt to determine the current or short-term marketability of any one parcel for any one use. Rather, it attempts to anticipate future needs for broad categories of

uses throughout the planning area for the next twenty years. In addition, the *Upper Swift Creek Plan* does not rezone land, but serves as a guide for making decisions relative to future rezoning applications. Finally, the plan attempts to suggest the proper relationship of land uses to one another and to the wider community. Market forces (availability and price of land, location, character and age of competing businesses, site specific characteristics such as topography and visibility from roads, accessibility to roads, area demographics, etc.) will determine the desirability of a specific use on one parcel over another, as well as the timing for developing such use, based on the principle of 'highest and best use'. The zoning process will determine the appropriateness of such use on a case-by-case basis by applying principals of desirable land use development patterns and adequacy of public facilities embodied in the comprehensive plan.

The *Upper Swift Creek Plan* does seek to promote a balance between residential, commercial and industrial growth. Such balance contributes to the area's long-term economic strength, to revenue generation, and to fostering a greater sense of community by recommending future land uses that encourage housing, services, and employment, which can interrelate to create a sense of place.

To these ends, the Planning Commission and Board of Supervisors have incorporated into *Land Use Plan* amendments guidelines that promote development patterns, which facilitate the orderly, harmonious, predictable and efficient use of the 446.5 square miles of land and water within its boundaries. These guidelines, as they apply to specific plan areas of the county, are embodied in the goals and recommendations of adopted plan amendments.

Goals and Recommendations - Land Use

Land Use Goal 1: *Promote orderly development patterns.*

The foundation of The *Plan for Chesterfield* is orderly development as an overall approach to managing the county's future growth. Orderly development means that future growth should be directed into appropriate locations within existing, developed areas with fringe development being an orderly extension beyond current developed areas. *The Plan for Chesterfield* strives to manage growth by fostering an orderly and generally predictable pattern of development and promoting a timely, orderly and efficient arrangement of public facilities and services to serve existing and future development.

Recommendations

A. ***Deferred Growth:*** *Adopt the Deferred Growth area shown on the land use plan map for the western portion of the Upper Swift Creek Plan geography. Public water and wastewater should not be extended into this area until the plan is amended through a subsequent review.*

Providing a Deferred Growth area in the western portion of the plan geography will promote orderly development by discouraging leapfrog or sprawl development and promote efficient delivery of infrastructure to support growth.

Activities within the Deferred Growth area should be limited primarily to agricultural and forestall uses with single-family residences permitted along existing area roads on large

parcels. Other types of development should be deferred until the plan is amended through a subsequent review.

The Deferred Growth area would discourage a leapfrog development pattern, with new subdivisions interspersed with undeveloped land. This pattern of development could overburden other public facilities, such as roads and schools, and adversely impact ground and surface water quality in the area for those area residents dependent on wells and septic systems. Adopting the Deferred Growth area in the western portion of the plan geography will reinforce current practices to promote orderly development and efficient delivery of infrastructure to support growth.

B. ***Delay Utility Extensions:*** *Adopt ordinance amendments designed to prohibit expansion of the public water and wastewater systems for uses within the deferred growth area until the plan is amended through a subsequent review.*

Development within the deferred growth area should be delayed until the plan is amended through a subsequent review. Prohibiting public water and wastewater extensions within the deferred growth area would be one means of ensuring that development is limited primarily to agricultural and forestall uses, with single-family residences permitted along existing area roads on large parcels, until such time that the status of the deferred growth area is reviewed through a subsequent plan amendment.

C. ***Subdivision and Utilities Ordinances:*** *Adopt ordinance amendments to require mandatory connection to the public water and wastewater systems for most types of development.*

Use of the public water and wastewater systems will allow a flexibility of development that would not otherwise be possible. This flexibility could include residential development of a wider range of densities and configurations than would be possible without public water and sewer, as well as some control over the timing of development as new residential projects would have to wait for water and sewer extensions.

Use of water and wastewater is currently negotiated through the zoning process. Amending the utilities and subdivision ordinances to require mandatory use of water and wastewater would eliminate the need for such negotiations. In addition, extensions of water and wastewater services would continue to be used as a tool to phase, direct, and/or pace development.

Land Use Goal 2: *Promote economic development opportunities.*

The *Plan for Chesterfield* encourages the designation of key locations for economic development. Once area major arterial roads are built or committed for construction, the areas suggested in the *Upper Swift Creek Plan* for Regional Mixed Use and Regional Employment Center uses will have access to markets. Vacant land in these areas, as well as improved properties with potential for redevelopment, should be reserved for employment generating uses. Commercial development serving these uses and larger markets would also be appropriate near the interchanges. New residential development, as well as piecemeal, strip commercial development should be discouraged in these areas.

Recommendation

A. ***Employment Generating Uses:*** *Use the plan to discourage residential and retail commercial development from locations the plan recommends for employment generating uses. Retail and service uses that serve primarily surrounding employment center uses may be appropriate when part of a larger industrial and/or office development. The scale and mix of such retail and service uses should be proportionate to the needs of the primary employment center uses and should not be built until the employment center uses have developed to a density sufficient to support such retail and service uses, without such retail and service uses having to rely on larger markets for financial success.*

Employment generating uses produce tax revenues, which defray the costs of providing services to county residents. In addition, such uses provide residents with jobs both within the county and close to home, thereby reducing commuting distances, travel time, air and water pollution and travel expenses. This, in turn, enhances the quality of life for working citizens and their families.

Generally, residential and retail commercial development in proximity to interchanges, together with potential pressure for additional non-employment development in other parts of the planning area may, if not properly evaluated, limit opportunities for development of employment generating uses. However, opportunities will arise over time for development of new employment generating uses in areas where adequate access and mitigating road improvements can be provided. Commercial nodes that support employment generating uses could be incorporated into the design of larger projects, further contributing convenience and to reducing travel distances. This strategy may require that pressure to develop in some locations, for uses other than employment generating uses, be discouraged until market conditions become conducive to employment development. However, such delay will benefit the community in the future by promoting, over time, a better-balanced development pattern.

Land Use Goal 3: *Promote a greater variety of residential types.*

The *Plan for Chesterfield* encourages provision for a variety of residential areas, thereby allowing residents a choice of neighborhood and living environments.

Recommendation

A. ***Residential Amendments Project:*** *As part of the Planning Department's on-going Residential Development Amendments project, consider various clustering, conservation/subdivision, traditional neighborhood design, and rural residential subdivision options as possible new Zoning Ordinance residential categories.*

The Planning Department has embarked on a project to update the residential portion of the county's zoning ordinance. Considering additional development options as part of the Residential Development Amendments project will offer opportunities to develop neighborhoods of unique character and sensitivity to the environment, while allowing residential development to occur at densities suggested by the comprehensive plan. Some of these new residential types could include standards designed to better

preserve some of the existing natural and forested character of many properties as future residential zoning and subsequent development occurs. Options to achieve this goal could include, but should not limited to, various clustering and conservation/subdivision configurations, increased setbacks and buffering along area roads to encourage preservation of forested views along roads, and connectivity between natural areas, between natural areas and neighborhoods, and between neighborhoods.

The existing forested landscape, stream valleys and natural areas of much of the planning area have scenic and passive recreational value which many residents and visitors find attractive. Opportunities exist to preserve the existing visual appeal of forested areas within the planning area, and to provide connectivity between natural areas and neighborhoods, as new development occurs. In addition, opportunities exist to create a greater variety of housing types and lifestyle choices for county citizens.

B. ***Residential compatibility:*** *Continue to use the zoning process to encourage new residential subdivisions with sole access through an existing or planned subdivision to meet or exceed the average lot size of, and have a density equal to or less than, the existing subdivision.*

The Plan for Chesterfield encourages actions that stabilize and improve the health of existing neighborhoods in order to forestall decline and blight and contribute to the overall health of the larger community. Residential developments of varying densities and lot sizes encourage variety in residential areas and offer County citizens a choice of neighborhoods, living environments and lifestyles.

New subdivisions developing within the study area increase the availability of housing in this part of the county. However, such residential development should be designed to protect existing neighborhoods and enhance the larger community.

Land Use Goal 4: *Preserve, protect and promote identified historic, scenic and natural resources.*

The *Plan For Chesterfield* encourages the preservation of historic, scenic and natural resources.

Recommendations

A. ***Adaptive Reuse of Historic Structures:*** *Encourage the preservation of historic structures and sites by allowing adaptive reuse that is compatible with existing and anticipated area development. Specifically, historic structures may be appropriate for office or light commercial uses if the property owner retains the structure, is willing to have it designated as a Chesterfield County historic landmark, and mitigates impacts of commercial use on surrounding properties. However, such designations should be exclusive of property required for future infrastructure improvements, such as road rights-of-way.*

Many sites within the planning area have historic significance. These include 19th and early 20th century homes and structures. *The Plan For Chesterfield* encourages the identification and preservation of lands, sites and structures that have historic

significance. Protection of such structures and sites through adaptive reuse offers opportunities for preserving, presenting and interpreting the county's historic heritage.

The 1991 *Upper Swift Creek Plan* identified 21 historic sites and structures for consideration for preservation. Since then, five of these resources have been lost, and others are degraded and could be impacted by development. However, a number of 19th and early 20th century structures (homes, churches, stores, etc.) remain, providing opportunities to preserve a sense of continuity for the community and contributing to the area's distinct sense of history and place.

B. ***Forested Views:*** *Adopt ordinance amendments to increase buffering along arterial roads in order to ensure that new residential developments along forested corridors preserve existing forested vistas adjacent to, but outside the ultimate rights of way of, area roads.*

The 1991 *Upper Swift Creek Plan* suggested that development throughout the area should preserve existing natural settings and vistas. It further suggested that the natural forested corridor along Genito Road, west of Swift Creek Reservoir, should be maintained with special design standards and with deep, densely wooded buffers. An ordinance amendment would better promote this recommendation as development occurs.

As the county continues to grow and develop, the forested character of some areas in the county, including much of the planning area, will be impacted by anticipated changes in land use patterns. However, by continuing the work begun with the 1991 Plan, opportunities exist to ensure that the existing forested vistas, as viewed from area roads, are preserved.

C. ***Conservation/recreation corridors:*** *Use the plan to identify conservation/ recreation corridors.*

The planning area has several stream valleys with significant, undeveloped RPAs, much of which is currently protected from intense development by the county ordinances, as well as by state and federal regulations. These regulations are designed to preserve environmentally sensitive areas such as wetlands, wildlife habitat and floodplains, as well as to preserve mature trees and native vegetation. In addition, such corridors provide visual and distance separation between residential and non-residential development, as well as provide area residents and the employees of area businesses with opportunities for exercise, recreation, relaxation and education.

Some Resource Protection Areas (RPAs) and other environmentally sensitive areas are already zoned and/or developed for residential and commercial uses. However, many others are relatively undeveloped and may provide opportunities for open space preservation and recreational activities through various cooperative public/private efforts.

Land Use Goal 5: *Encourage land use transitions.*

The *Plan for Chesterfield* encourages land use transitions between less intense uses, such as residential neighborhoods, and more intense uses, such as commercial and higher intensity

regional and employment generating uses, as a means of promoting orderly development patterns that are designed to protect neighborhoods.

Recommendation

A. ***Land Use Transitions:*** *Use the plan to suggest land use transitions, including higher density residential and office uses, between lower density residential development and commercial and higher intensity employment generating uses.*

A hierarchy of land uses, from more-to-less intense uses, provides the best protection to residential neighborhoods. Other protections (buffers, orientation of uses, and design standards which reduce nuisances such as noise, and light, etc.) are supplemental mitigation to the primary protection provided by physical separation between incompatible uses. Therefore, transitional uses contribute to the overall appearance and livability of the community.

Portions of the existing land use pattern within the planning area, particularly along Route 360, are characterized by residential areas adjacent to older commercial strip zoning and land uses. In some instances, these residential areas do not have the benefit of buffers or other mitigating design features to lessen the impact of adjacent, commercial activity. However, in many places, encouraging greater depths of non-residential zoning can afford opportunities to provide land use transitions between more intense uses and residential neighborhoods. In other places, where such depth is not available, developers may be able to work with nearby residents to incorporate design features that mitigate potential adverse impacts on nearby neighborhoods.

Goals and Recommendations – Transportation

The automobile is and, for the foreseeable future will remain, the predominant mode of transportation in the Upper Swift Creek Plan area and in the county as a whole. Most roads in the Upper Swift Creek Plan area are substandard, and will have to be improved to accommodate even minor increases in traffic resulting both from development within the county and in the surrounding regions. The county's Thoroughfare Plan identifies the future road network needed to accommodate future traffic volumes. It has been the county's policy for development to construct planned roads (other than freeways) to help mitigate their traffic impacts. State funding has been used to improve existing roads. Funding from the Virginia Department of Transportation (VDOT) has been inadequate to address existing needs, and the prospects for additional state funding are uncertain at best. Alternate funding sources continue to be investigated to address the shortfall between needs and funding.

Transportation Goal: *Provide a safe, efficient, and cost effective transportation system.*

The county's Thoroughfare Plan, which was originally adopted by the Board of Supervisors in 1989, identifies right-of-way classifications of existing roads, and right-of-way classifications and general alignments of future roads. As development occurs in the Upper Swift Creek Plan area, in other areas of the county, and in the region, road improvements will be needed in this area to accommodate increasing traffic volumes and reduce congestion.

Recommendations

A. Thoroughfare Plan Modifications: ***Approve modifications to the adopted Thoroughfare Plan as shown on the map in Supporting Document C:***

1. Increasing the recommended right-of-way width on the proposed North/South Major Arterial ("Woolridge Road Extended") between Route 288 and the proposed East/West Major Arterial just south of Powhite Parkway Extended from 90 feet to 120 feet. A six-lane road will be needed to accommodate future traffic volumes on Woolridge Road. The additional right-of-way is needed to accommodate the six lane road;

2. Increasing the recommended right-of-way width on the proposed East/West Major Arterial north of Hull Street Road, connecting Otterdale Road and a large planned development (Magnolia Green), from 70 feet to 90 feet. This wider right-of-way will better accommodate traffic generated by the proposed land uses in this area;

3. Decreasing the recommended right-of-way width of Watermill Parkway from 90 feet to 70 feet. A grade-separation of this roadway is planned at the future Powhite Parkway Extension. With the construction of Woolridge Road Extended, the existing two-lane road will be adequate to accommodate the projected traffic volumes;

4. Deleting the proposed interchange on Route 288 south of the Genito Road overpass, and the East/West Major Arterial connecting the interchange to Old Hundred Road to the west, and to Warbro Road to the east. The interchange was originally planned to help promote economic development. However, the land uses being developed around the proposed

interchange are lower in density than were anticipated, and the interchange is no longer needed;

5. Deleting Hensley Road between Spring Run Road and Springford Parkway. This section of Hensley Road has been constructed into a cul-de-sac at its western end as part of a recent development project;

6. Deleting the proposed East/West Collector connecting Otterdale Road with Fox Club Parkway. As a result of a recent zoning case, this proposed Collector will not connect with Fox Club Parkway;

7. Deleting the proposed East/West Major Arterial connecting Winterpock Road to Spring Run Road just south of Hull Street Road, and replacing it by adding McEnnally Road between Winterpock Road and Spring Run Road as a 90 foot Major Arterial. This change is the result of approved zoning cases;

8. Deleting the proposed North/South Major Arterial that extends west from Otterdale Road north of Genito Road, crosses Powhite Parkway Extended, and connects to the proposed East/West Major Arterial. This change is the result of approved zoning cases, and is recommended due to topography and existing development;

9. Realigning the western section of the proposed East/West Major Arterial that currently aligns with Lacy Farm Road to the north, closer to the Norfolk Southern railroad line. The realignment is being considered in conjunction with a proposed zoning, and at the request of the developer and residents along Lacy Farm Road;

10. Realigning Powhite Parkway Extended and the proposed interchange in the Genito Road area. The realignment was requested by residents in this area (see Supporting Document C - Map: Realignment of Powhite Parkway Extended and Genito Road Proposed Interchange);

11. Realigning the intersection of the eastern end of Mount Hermon Road with the proposed North/South Major Arterial. The existing intersection is adjacent to the Norfolk Southern railroad crossing. Greater separation will better accommodate increased traffic volumes as the area develops;

12. Realigning the East/West Major Arterial connecting Otterdale Road Extended with Winterpock Road further to the north, and deleting the southern section of the North/South Arterial connecting this road with Beach Road. This change is the result of a zoning case in this area;

13. Realigning Mount Hermon Road north of Genito Road, and Mount Hermon Road Extended south of Genito Road. This realignment is necessary due to the location of a Church on the south side of Genito Road, and is consistent with the development of Horner Park;

14. Changes in the road network based on Magnolia Green development that include: 1) adding a proposed 70-foot North/South Collector connecting Duval Road west of Otterdale Road with the proposed East/West Arterial to the north; 2) shifting the alignment of the proposed Powhite Parkway; 3) relocating the proposed interchange on Duval Road to the proposed east/west major arterial; and 4) realigning other planned roads within Magnolia Green. These roads are shown on the Magnolia Green Master Plan;

15. Adding Ledo Road as a 70 foot Collector. This change is recommended due to the proposed land use in this area; and,

16. Providing cul-de-sacs on Otterdale Road at the Powhite Parkway Extension. This section of Otterdale Road has very poor alignment and no shoulders. The cost to reconstruct the road would be excessive. The proposed East/West Major Arterial and Woolridge Road Extended, which will be constructed in conjunction with new development, will better accommodate increasing traffic volumes.

B. Development Conforming To Thoroughfare Plan: *Continue zoning and development review practices to encourage development proposals to conform to the Thoroughfare Plan with respect to the construction of road improvements and the dedication of right-of-way.*

C. Mitigation of Traffic Impacts: *Continue zoning and development review practices to encourage development proposals to include mitigation of their traffic impacts by providing road improvements and controlling the number of direct accesses to major arterial and collector roads.*

D. Bikeway Plan: *As improvements are provided on roads identified in the county's Bikeway Plan, continue to consider incorporating bicycle facilities.*

Staff has evaluated the ability of the current Thoroughfare Plan, when fully in place, to accommodate the traffic generated by total build-out of the county. From a road capacity standpoint, the Thoroughfare Plan network, when completed, will adequately accommodate build-out traffic volumes.

While the Thoroughfare Plan, when fully developed, will be adequate to accommodate "build-out" of the county, most of the existing road network requires complete reconstruction today in order to accommodate even minor increases in traffic. Most of the existing roads in the Upper Swift Creek Plan area are currently unsafe. The roads have no shoulders, poor vertical and horizontal alignments, and must be improved to safely accommodate increases in traffic.

According to the Growth Analysis Report, the Planning Department has estimated that build-out of the entire county could take at least 50 or more years. Staff has estimated that it could cost approximately $3 billion countywide to upgrade existing roads, excluding freeways, to accommodate the increased traffic resulting from build-out. Approximately $400 million of those road costs would be in the Upper Swift Creek Plan area.

Improvements to some of these existing roads may be provided in conjunction with development projects. Other improvements will need to be funded through public sources. Based on current VDOT revenue forecasts, the county anticipates receiving an average of only about $27 million per year in the coming years, countywide, to improve both Primary and Secondary roads. The prospects for additional state funding are uncertain at best. Even if the county were to receive $27 million a year for the next 50 years, there would be an anticipated shortfall of approximately $1.6 billion. A shortfall in funding for road improvements is not unique to Chesterfield County. It is impacting other localities around the state, and around the country.

Some of the road improvement funds available to the county are being used in the Upper Swift Creek Plan area. There are currently several road improvement projects, in and adjacent to the

plan area, that are in the Secondary and Primary Six Year Improvement Plans, or that are otherwise funded:

· Hull Street Road – widen to 6 and 8 lanes from Swift Creek to Winterpock Road. The project is funded with state funds and county bond proceeds. Construction is anticipated to begin in the Spring of 2006.

· Hull Street Road – a project to add a fourth westbound lane on Hull Street Road from Route 288 to Old Hundred Road/Commonwealth Center Parkway. Construction is planned for Spring 2006.

· Bailey Bridge Road – three spot safety projects and one reconstruction project at various locations between Route 288 and Spring Run Road. One project has been completed. Anticipated construction start dates for the remaining projects range from Summer 2006 to Spring 2010.

· Spring Run Road – improve curves between McEnnally Road and Bailey Bridge Road. Anticipated construction start date is Fall 2007.

· Woolridge Road south of Crown Point Road – improve curve. Construction is anticipated to start in 2008.

Several potential options have been considered for supplementing the road improvement funds received from the state. These options are outlined in the Supporting Document C: Upper Swift Creek Plan Amendment: Transportation Options

This plan makes recommendations on modifications to the county's Thoroughfare Plan. Winterpock Road is currently identified as a 90 foot Major Arterial. Staff has identified the need for Winterpock Road to be six lanes wide (120 foot wide right-of-way) to accommodate traffic volumes at total build-out of the county. However, most of the property along Winterpock Road has already been "roadstripped". Changing the recommended right-of-way width on Winterpock Road from 90 feet to 120 feet to accommodate the future six lane widening could adversely impact current residents along the road. Staff will only seek the wider 120 feet of right-of-way in conjunction with new development proposals.

Almost all roads in the county are the responsibility of and maintained by VDOT. However, Woolridge Road over Swift Creek Reservoir is a county road. The county has no road maintenance budget and no formal maintenance program. This section of Woolridge Road has three box culverts that are over 50 years old. The pavement section is substandard, primarily consisting of asphalt placed on top of soil. Any improvements to this section of Woolridge Road, estimated to cost between $8 and $9 million, would have to be funded by the county.

The county's Thoroughfare Plan includes the extension of the Powhite Parkway from its current terminus, through the Plan area, to Hull Street Road. During the design and construction of the extension, the County should coordinate with the appropriate Federal and State agencies and private entities to ensure that the highest water quality standards and practices are employed so that the quality of the Swift Creek reservoir will be preserved.

Rail Service

One railroad line passes through the Upper Swift Creek Plan area. This Norfolk Southern line is currently in use for limited freight service. The Richmond Area Metropolitan Planning Organization (MPO) recently commissioned a report on the feasibility of providing Light Commuter Rail transit service in the Richmond region. A section of the Norfolk Southern line east of the Plan area was recommended for use. The last recommended station was in the Midlothian Village area.

There have also been discussions concerning a more regional rail passenger service. One part of the service would utilize the Norfolk Southern line to accommodate the Richmond to Lynchburg route. Improvements to the rail line would be necessary before the service could be initiated. There have been discussions about providing commuter rail service that would utilize the improvements to the line to extend commuter service further west than the Village of Midlothian. One of several proposed stations in the county would be located along Mount Hermon Road near County Line Road. The line would provide commuter rail service between western Chesterfield County and the Richmond International Airport. The proposal has not progressed beyond the discussion stage.

Public Transportation

The Chesterfield County Coordinated Transportation Program, Access Chesterfield, provides transportation services for any Chesterfield County resident who is disabled, or over age 60, or who meets federal income guidelines regarding poverty levels. Transportation providers are contracted by the Chesterfield County Access Chesterfield program to provide transportation service within the Chesterfield County, Richmond, Petersburg, Hopewell and Colonial Heights metropolitan areas. The program offers advance reservations for ride sharing with other passengers.

RideFinders provides numerous transit programs and services in the Richmond region, including organizing vanpools in response to commuters' requests. RideFinders' vanpools presently serve locations in the county such as Brandermill and Midlothian. RideFinders also provides a matching service to assist commuters in organizing carpools.

Bikeway Plan

The county's Bikeway Plan was adopted by the Board of Supervisors in 1989. The purpose of the Bikeway Plan is "to designate a coordinated system of bike facilities to connect county and state parks with other high bike traffic generators such as schools." The Bikeway Plan is not intended to designate roads that are appropriate for bicycle travel, but to identify routes where bikeway facilities should be provided in conjunction with future road improvement projects. In the Upper Swift Creek Plan area, Old Hundred Road, Genito Road, Spring Run Road, Bailey Bridge Road, and a section of Otterdale Road are designated in the Bikeway Plan as part of the "bikeway network". In accordance with the Bikeway Plan, staff will consider including bike facilities along these roads in conjunction with future road improvements.

Park-and-Ride Lots

The Transportation Department has, on occasion, requested that developers consider including facilities to accommodate "park-and-ride" lots or commuter drop-off lots. These are areas that

could be used by commuters to provide convenient places for carpoolers and vanpoolers to meet and park their cars. Developers have been reluctant to designate these areas, due to the requirement that additional parking areas also be provided. The Transportation Department will continue to request these areas when large-scale development occurs along major commuter routes. However, there is no intention at this time to make these areas a requirement.

Goals and Recommendations – Environmental Quality

The boundary of Upper Swift Creek Plan amendment encompasses a portion of the 64.0 square miles (approximately 42,000 acres) that makes-up the Swift Creek Reservoir Watershed. The watershed is located in the northwest corner of the county. The headwaters of the watershed approximately 7000 acres are located in Powhatan County. The watershed drains to the Swift Creek Reservoir, one of the county's three drinking water sources. The Reservoir produces approximately eight million gallons of water per day (design 12Mgal/day), providing drinking water to 30 percent of the county's citizens. The rolling hills, hardwood forests, 1,700-acre Swift Creek Reservoir and eight major tributaries draws citizens to live, work and recreate in the region.

Approximately 7000 acres or 20 percent of the 35,000 acres contained within the county's portion of the watershed is developed. The remainder of the area has been recommended by county plans for significant change over the next 20 years. Because of this growth, continued vigilance and improved practices and standards should be encouraged to ensure that development within the watershed contributes to the maintenance of water quality of the reservoir and tributary streams.

To address the problem of urban runoff, under the Clean Water Act, in 1992, the U.S. Environmental Protection Agency (EPA) issued municipal storm water regulations. These regulations require large municipalities, including Chesterfield County, to obtain and comply with National Pollutant Discharge Elimination System (NPDES) permit to discharge storm water. In 1996, Chesterfield County obtained a Virginia Stormwater Management Program (VSMP) permit (also known as a municipal separate storm sewer system, or MS4, permit), issued through the Virginia Department of Conservation and Recreation (DCR). The permit requires the county to implement effective management practices and enact a local stormwater program to include education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention.

Environmental Goal: *Maintain state and federal water quality standards of Swift Creek Reservoir and its tributaries.*

This goal reflects the importance of protecting the Swift Creek Reservoir Watershed and its resources to preserve the reservoir as a viable source of drinking water. In addition, protecting the natural resources associated with the Reservoir (i.e. wetlands, streams, ponds, and lakes) provides for abundant habitat for wildlife and outdoors activities including fishing, hunting, birdwatching, and boating.

Recommendations:

A. Promote land uses and development standards that are consistent with the protection of critical natural systems within watershed and that will facilitate maintenance of state water quality standards for area streams and Swift Creek Reservoir.

In 1997, the Board of Supervisors adopted a *Watershed Management Master Plan* for the Swift Creek Reservoir Watershed. The *Watershed Management Master Plan* includes an in-lake phosphorous limit and establishes measures such as a reduced phosphorous standard for new residential development and the construction of regional Best Management Practice (BMP) basins to filter pollutants to ensure that the 0.05 mg/L in-lake phosphorus limit is maintained under suggested land use conditions. The limit was a threshold intended to protect general water quality and to ensure the viable use of the reservoir as a drinking water source. Without adequate management strategies for the reduction of nutrients to Swift Creek Reservoir, a variety of detrimental water quality and treatment problems are possible. These include excessive algal blooms, taste and odor problems, and depleted oxygen levels, all of which lead to increased cost of water treatment. Additionally, the adverse effects of pollutants on fish and other aquatic organisms may limit the reservoir as a recreational water body. The regional Best Management Practice strategy has been met with resistance by state and federal agencies. Therefore, other means of protecting water quality need to be developed and employed as a means of protecting the watershed, its resources and the Reservoir. The following recommendations will be implemented as part of the modifications to the county's Watershed Master Plan.

- **Land Use Plan:** *Adopt a land use plan that is projected to result in future development that will have less of a water quality impact than the current Upper Swift Creek Plan (adopted in 1991 and amended in 2000).*

Annual total phosphorus loads were calculated for four scenarios, testing different residential densities for the future *Upper Swift Creek Plan*. In-lake phosphorus concentrations were predicted for each scenario. The results of this modeling showed that the land use modifications of the preferred land use plan anticipated by the recommended *Upper Swift Creek Plan* would have less impact on area water quality than the current, adopted plan. Modeling of the proposed land use scenario indicates that the incorporation of the deferred growth area is critical for the maintenance of the phosphorous levels within the Reservoir (see Supporting Document D).

B. Protect and preserve the critical natural systems and areas within the watershed, which currently provide maintenance for water quality.

While there has been a significant focus on the protection of Swift Creek Reservoir for the past fifteen years, there has not been adequate attention to the protection of other important environmental resources such as wetlands, riparian corridors and stream systems located within the watershed (Supporting Document E). The functions of these features are significant to watershed health, and any loss of these features will contribute to water quality degradation. While state and federal agencies regulate impacts on those resources, they are often impacted by permitted activities, and the mitigation of the impacts is allowed to take place outside of the county. Identifying the location, health, and loss or gain of these features is important to management of water quality.

- Maintain GIS layers identifying the location of critical systems.
- Evaluate these systems and identify those that are more critical for water protection or would benefit from rehabilitation.
- Mitigation for loss of resources should be required to take place within the watershed where the impact has occurred.
- Measures are needed to ensure that new development reduces the impacts to wetlands and streams and that the day-to-day activities of both residential and commercial uses lessen their impact on the important resources.

C. Improve, restore and prevent further degradation of those resources that are degraded.

The report *Assessment of the Biology, Habitat and Chemistry of Streams in the Upper Swift Creek Watershed, Chesterfield County, Virginia* (Supporting Document F) presents the physical, chemical and biological water quality data collected by Chesterfield County's Water Quality Section from 2002 to 2005, focusing on the streams of the Upper Swift Creek Watershed. Monitoring information is necessary to assess the overall effectiveness of the water quality management strategies. Information generated from the county's water quality monitoring programs should be used to identify systems, which are in need of restoration or rehabilitation. This information should be used to prioritize those systems so that limited resources may be targeted to areas that would benefit the most.

- **Stream and Wetlands** – Restoration is a collection of methods for improving degraded conditions or preventing the degradation of a stream or wetland. The county should continue to actively pursue compensatory mitigation projects as well as grant funding for stream and wetland restoration. .

- **Riparian Buffer** – The Chesapeake Bay Preservation Act requires riparian buffers along streams having perennial flow but does not necessarily address the condition of that buffer or its ability to maintain water quality. As part of a grant, to address the quality of riparian buffers, the county has recently completed an inventory of the riparian buffers within the Upper Swift Creek Reservoir Watershed (Supporting Document G). This inventory focused on the extent and quality of the stream buffer, to include vegetation types and tree canopy coverage. As part of the grant, a new GIS layer has been developed that will facilitate the identification of buffers that would benefit from or require restoration. This knowledge will aid in directing funds and potential grant funding to buffer areas where water quality would benefit the most from buffer enhancement.

Currently, restoration of these features requires cooperation of landowners. While many landowners recognize the benefits of these improvements, placing these environmental features within open space or easements of future development projects will ensure better protection and facilitate future projects.

D. Maintain biological and habitat diversity and promote habitat connectivity by protecting undisturbed land corridors between watersheds and sub-watersheds within the Swift Creek Reservoir Watershed.

As a result of the Resource Protection Area (RPA) regulations, each of the major tributaries within the watershed has a riparian corridor along their banks. However these RPAs do not provide enough land to promote habitat diversity and connectivity between neighboring watersheds.

- Preservation of natural areas within and between residential developments will help maintain connectivity.

- Educational efforts and enhancement of stewardship conservational roles on the part of the homeowners will help the county promote natural diversity and maintain connectivity of habitats.

E. Minimize stormwater runoff through construction site design and site control.

The erosion of land as a result of stormwater flows is detrimental to water quality because of the displaced sediment that is deposited into streams. The deposition of sediment loads is of particular concern during construction activity. Areas under construction are characterized by high production of suspended solids caused by erosion of unprotected, exposed soil during rain events. Excessive pollutant loads can be produced from construction areas if proper erosion-control practices are not implemented. Even with proper implementation of erosion-control practices, as required by the county, Total Suspended Solid (TSS) loads from areas under construction are significantly higher than loads from stabilized areas.

The impacts of this sediment on the receiving waters include: deterioration of aquatic habitat, deterioration of aesthetic value, loss of reservoir storage capacity, and accumulation of bottom deposits that inhibit normal biological life. In addition, sediment is a primary carrier of other pollutants, including phosphorus. In order to understand the impact of sediment runoff from construction sites in the Upper Swift Creek Reservoir Watershed, modeling of two sites was conducted. Using this information it was determined that in a typical year the watershed could see the delivery of 720 to 3,400 tons of sediment inputs from unprotected construction sites. Erosion and sediment controls are predicted to reduce the annual load to between 230 and 1,350 tons per year. If the county can maintain effective erosion and sediment controls, then, in accordance with the predicted association with TSS delivery, approximately 460 to 2,780 pounds per year of phosphorus would reach the reservoir. The Management Plan and updated modeling indicate the required maximum limit in the range between 25,000 and 26,000 pounds of phosphorus per year at projected build out of the watershed. In terms of the annual phosphorus-loading goal, the phosphorus associated with construction sediment is approximately 2 to 11 percent of the annual goal for the reservoir. Without erosion and sediment controls, the range is 1,500 to 6,970 pounds per year, or approximately 6 to 27 percent of the annual goal (see Supporting Document H).

- Erosion and sediment control practices can reduce TSS exported from construction sites by an order of magnitude. It follows that, to protect the Swift Creek Reservoir and its tributaries, particular attention should be paid to the implementation and enforcement of erosion and sediment controls.

- To ensure the protection of water quality, when a project is near or adjacent to sensitive resource features or waterbodies, additional measures that exceed the state minimum standards should be required of development, to include VDOT road projects.

- Monitoring of the watershed tributaries during storm flows would be used to assess the need for additional measures.

F. Promote and encourage development standards for new development and redevelopment that minimize the environmental impact of improvements.

Opportunities exist to promote and encourage new development and redevelopment methodologies using pollution prevention practices, source control measures and reduction of impervious areas. Currently these measures may be considered during the zoning process. With future development, the county should consider the development of ordinances that will consistently apply water quality treatment measures.

- **Low Impact Development (LID):** LID employs a collection of techniques, which reduce pollutants and controls runoff by mimicking predevelopment site hydrology to store, infiltrate, evaporate and detain stormwater runoff. This control and reduction is achieved by minimizing impervious cover, conserving natural areas, and providing additional distributed stormwater management. The following are examples of LID:

i. **Biorentention practices** are the development of shallow landscaped depressions that capture runoff and filter it through a prepared soil mix.

ii. **Stormwater infiltration practices** capture and temporarily store runoff allowing it to infiltrate into the ground over a period of days.

iii. **Stormwater treatment practices** are a series of structural and non-structural practices that compensate for hydrologic changes related to land development by reducing runoff volume and improving water quality.

By controlling the quality, quantity and velocity of runoff, the health and supply of surface and ground water sources are better protected from the impacts of development caused pollution.

- **Development Site Design:** Better site design minimizes land disturbance, preserves existing vegetation, and minimizes impervious cover through application of a series of development principles. Examples of these principles are outlined below:

i. **Minimization of clearing and grading** reduces the area exposed to stormwater thereby reducing sediment discharge and the need for additional E&S measures.

ii. **Reducing pollutants** generated by encouraging designs and containment structures that allow for pollution prevention and spill contingency plans.

iii. **Remediation or interception** of pollutants by employing, after development, site-specific treatments of areas that have greater pollution potential

iv. **Tree Save/Preservation/Planting** is often not fully recognized for its stormwater benefits. Trees intercept and slow the fall of rainwater, helping the soil to absorb more water for gradual release into water resources. Increasing throughfall area

prevents flooding, filters the water, releases water into the atmosphere, and reduces stress on the stormwater system. Based on these benefits developers should be encouraged to preserve a percentage of each lot or development to remain in a natural state. Additionally, these areas should allow for the green space habitat and wildlife corridors between neighborhoods and sub-watersheds.

G. Promote citizen's group participation and education to aid in the protection of the Swift Creek Watershed.

This goal recognizes the importance of the involvement of citizens to aid in the protection of water quality. Because citizen involvement is important to water quality, the county should encourage citizen groups and individual citizens to engage in activities that improve watershed awareness and active stewardship (i.e. litter clean-up campaigns and buffer management).

- Develop and distribute educational information and sponsor local watershed clean-up initiatives that would result in an overall improvement of the quality of the natural resources with the Upper Swift Creek Region.

H. Promote watershed awareness and stewardship of residents, community associations, businesses and visitors through education programs, recreational opportunities, and participatory watershed activities.

Citizens and businesses privately own the majority of the watershed, including most of its natural resources. Effective private stewardship of the watershed is an integral part of its protection. It is intended to expand the current educational efforts, as required under the county's VSMP permit (Supporting Document I), within the Upper Swift Creek Watershed so as to encourage responsible environmental stewardship at the individual citizen level. As the watershed becomes more urbanized, water quality resources will come under new pressures. Currently, stormwater data from the Brandermill and Woodlake subdivisions indicate elevated levels of nutrient inputs during the Fall and Spring seasons that most likely a result of lawn care. As new residential developments are built, this trend is expected to continue. This data suggests citizens living in the watershed should be educated on nutrient pollution, to include education on the proper techniques for home and lawn care. In addition to educational efforts, the county also promotes active participation in watershed activities such as stream and lake monitoring, riparian buffer planting and stream clean-ups. Passive and active recreational activities, such as hiking and boating, are another way to raise watershed awareness through trails, nature centers and fishing tournaments.

- **Education and Outreach (on-going program):** Publications and programs should be developed to specifically address the challenges and issues of the Upper Swift Creek Watershed, stressing the importance of protecting the Swift Creek Reservoir as a primary drinking water source. The citizens of this watershed should have a heightened awareness of the watershed in which they live and their personal effects on the water quality. This can be accomplished by working the various audiences. This could include:

Working with the county schools to develop a special curriculum for schools in the USC, develop a county-sponsored volunteer program specifically for watershed residents and to encourage homeowners associations to include water quality measures such as RPA-Buffer

Management and yard maintenance language in their covenants especially for citizens on and around the lake.

- **Stormwater Management and Source Controls:** For existing developments, identify areas where stormwater maintenance and retrofitting may be possible and necessary to maintain water quality. Develop a mechanism to make funding available to implement these retrofits. Successful retrofit projects will be limited by environmental factors, monetary concerns and public support. Some of the retrofit strategies are outlined below and should also be considered in new development projects:

  a. Rain barrels and dry wells for citizens' homes and businesses
  b. Bioretention facilities, where soils permit
  c. Outfall controls (end of pipe treatments or facilities that divert smaller storms, provide energy dissipation, and/or treatment of stormwater)
  d. Retrofit culverts and drainage systems
  e. Retrofit and/or construct stormwater facilities
  f. Wetland and Stream Channel protection
  g. Manufactured BMPs (non-residential areas only)

Financial Strategies:

Develop an affordable and effective watershed management plan by devising strategies that build upon existing regulations, programs, and policies, take advantage of established monetary resources, and better target the management budget for more expensive land acquisitions and structural stormwater practices. Increased coordination between agencies with jurisdiction in the watershed, such as VA Department of Transportation (VDOT), County of Powhatan, VA Department of Forestry, VA Department of Environmental Quality, the Army Corp, public utilities, and the county will be more effective in implementation of the watershed plan.

Upper Swift Creek Plan
Land Use Categories
(See accompanying Land Use Plan Map)

General Note: Suggested densities of development include all property suggested for such densities regardless of any development limitations that may exist or may be anticipated (such as planned roads or other public facilities, environmental or topographic features, areas suggested on the plan for conservation/recreation, etc.)

General Note: Density of development for residential and non-residential zoning requests that include areas suggested on the plan for conservation/recreation should be calculated on the gross acreage for all property included in the request, including areas suggested for conservation/recreation, based on the recommended densities of the plan.

General Note: The boundaries of conservation/recreation areas depicted on the plan are generalized.

Residential (2.0 or less dwelling units per acre): Residences, places of worship, schools, parks and other similar public and semi-public facilities.

Note 1 on Land Use Plan map: Projects that drain away from Swift Creek Reservoir would be appropriate for densities of up to 2.2 dwelling units per acre.

Office/Residential Mixed Use: Professional and administrative offices and residential developments of varying densities. Supporting retail and service uses would be appropriate when part of a mixed use center of aggregated acreage under a unified plan of development. (Equivalent zoning classifications: R (various), O-2)

Note 4 on the Land Use Plan map: Regional mixed use may be appropriate in the northwest quadrant of the Route 288 /Hull Street Road interchange, based on existing, planned and/or proffered road improvements, as well as provision of adequate design standards to address land use transitions, design compatibility, visibility from area roads, etc.

Deferred Growth: Primarily limited to agricultural and forestall uses, isolated single-family residences on large parcels, places of worship, and other similar semi-public facilities. Other types of development, including public facilities such as public schools and parks, as well as the extension public water and wastewater services, should be deferred until the plan is amended through a subsequent review. (Equivalent zoning classification: A)

Community Mixed Use: Community scale commercial uses, including shopping centers, and service and office uses that serve community wide-trade areas. Residential uses of various types and densities may be appropriate if part of a larger mixed-use project and the design is integrated with other uses. (Equivalent zoning classification: C-3)

Note 2 on the Land Use Plan map: Community Mixed Use Node: Community scale commercial uses including, but not limited to, shopping centers, service and

office uses that serve community wide trade areas. Residential uses of various types and densities may be appropriate if part of a larger mixed use project and the design is integrated with other uses. The size and location of centers, and the mix of uses, should be determined in part by market area, availability of adequate access to the transportation system, and availability and suitability of land. In general, however, community-scale mixed use centers should be located at the intersections of major arterial roads. Intersections should be analyzed to determine which quadrant is best suited (through detailed analysis of land assembly, access or impact on residential uses) for a center, and the center should be located only on the superior site. Commercial uses should be located at one corner of the intersection and be surrounded by office and residential use transitions. (Equivalent zoning classification: C-3)

General Business Mixed Use: General commercial uses including, but not limited to, automobile-oriented uses and light industrial uses. (Equivalent zoning classification: C-5)

Note 6 on the Land Use Plan map: Properties not currently zoned for General Business Mixed Use should, at the time of zoning, be aggregated to sufficient acreage to ensure that development is oriented away from area roads.

Regional Mixed Use: Integrated office, regional commercial, higher density residential and light industrial park uses incorporated into a mixed use center of aggregated acreage under a unified plan of development. (Equivalent zoning classifications: C-4, I-1)

Note 3 on the Land Use Plan map: Outside storage might be appropriate in this area if such outside storage is oriented internal to a project and away from roads.

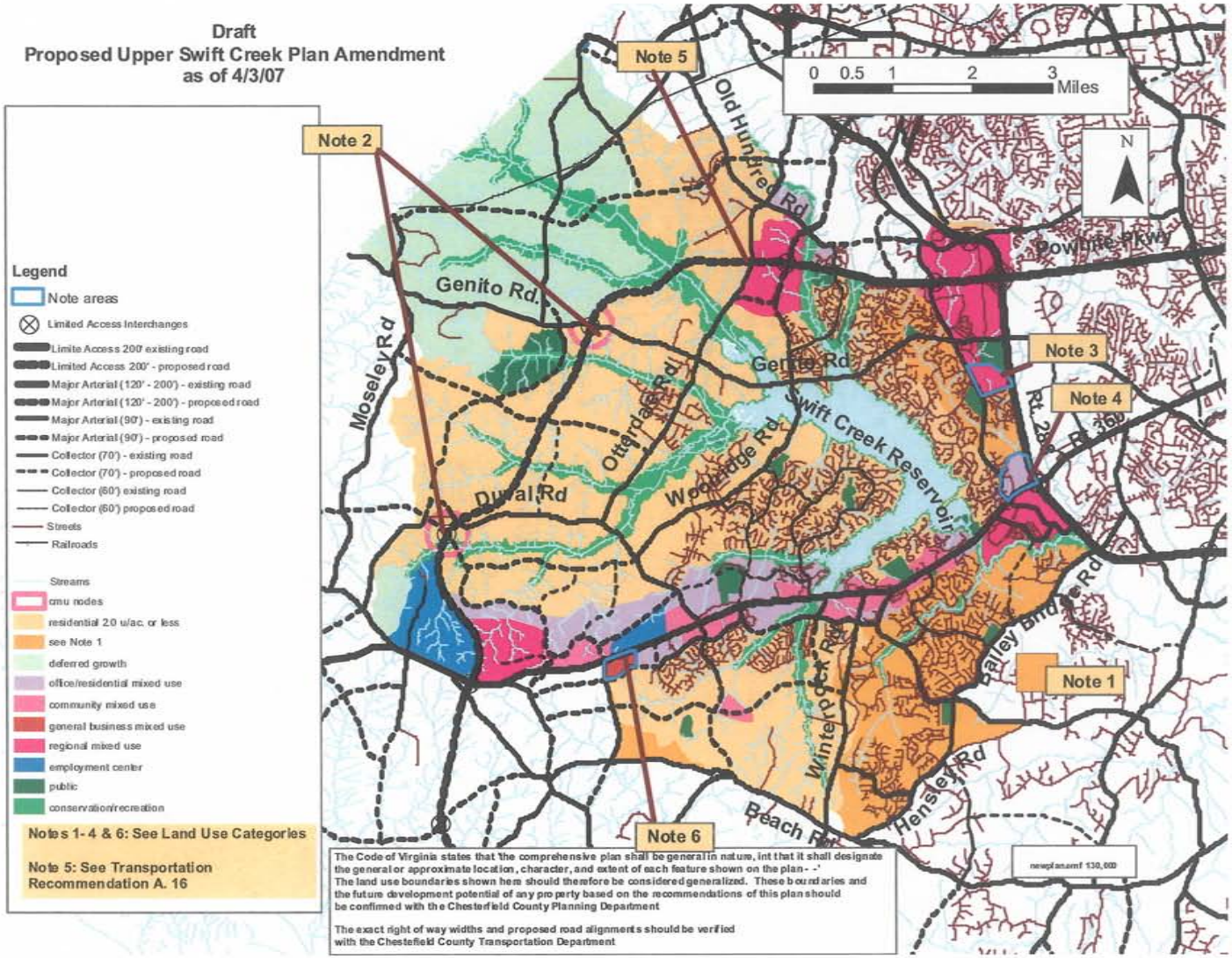
Employment Center: Integrated corporate office, research and development, and light industrial uses on acreage of sufficient size to allow a unified plan of development. Moderate industrial uses may be appropriate when designed, located and/or oriented to ensure compatibility with less intense uses, and where appropriate access and transitions are provided. Retail and service uses that serve primarily surrounding employment center uses may be appropriate when part of a larger industrial and/or office development. The scale and mix of such retail and service uses should be proportionate to the needs of the primary employment center uses and should not be built until the employment center uses have developed to a density sufficient to support such retail and service uses, without such retail and service uses having to rely on larger markets for financial success. (Equivalent zoning classifications: I-1, I-2, O-2)

Convenience Commercial (not shown on Plan): Small scale uses, such as limited retail and personal services, when located within planned residential areas and designed to attract customers primarily from immediate neighborhoods only. Typically, such uses should: be planned in conjunction with residential projects in order to insure compatibility; be limited in size and acreage; be located at the intersections of collector streets, or between residential neighborhoods and higher intensity uses and/or arterials; and provide transitions through consideration of appropriate uses, building scale, architecture and site design. Such areas require detailed analysis to ensure compatibility; therefore, individual locations cannot be depicted on the Land Use Plan map. (C-1)

Public: Significant publicly owned properties (county, state and federal), including schools, parks, cemeteries and other public facilities, as well as publicly owned vacant

land. Should such land be redeveloped for other uses, the appropriate uses would be those that are compatible with surrounding existing or anticipated development, as reflected by existing land uses, zoning, and/or the recommended land uses on the adopted comprehensive plan.

Conservation/Recreation: Lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. Recommended land uses are those in conformance with the Chesapeake Bay Preservation Area, Upper Swift Creek Watershed, and other environmental provisions of the Chesterfield County Zoning Ordinance. Where appropriate, some areas may be suitable for limited pedestrian and bicycle trails, or for other passive recreation activities.


Draft
Proposed Upper Swift Creek Plan Amendment
as of 4/3/07
Legend
Note areas
Limited Access Interchanges
Limite Access 200' existing road
Limited Access 200' - proposed road
Major Arterial (120' - 200') - existing road
Major Arterial (120' - 200') - proposed road
Major Arterial (90') - existing road
Major Arterial (90') - proposed road
Collector (70') - existing road
Collector (70') - proposed road
Collector (60') existing road
Collector (60') proposed road
Streets
Railroads
Streams
cmu nodes
residential 2.0 u/ac. or less
see Note 1
deferred growth
office/residential mixed use
community mixed use
general business mixed use
regional mixed use
employment center
public
conservation/recreation
Notes 1- 4 & 6: See Land Use Categories
Note 5: See Transportation Recommendation A. 16
Note 1
Note 2
Note 3
Note 4
Note 5
Note 6
0 0.5 1 2 3 Miles
N
Genito Rd.
Moseley Rd
Duval Rd
Ottenden Rd
Woodridge Rd
Swift Creek Reservoir
Old Hundred Rd
Downtie Pkwy
Rt. 288
Rt. 360
Valley Bridge Rd
Winterpock Rd
Hensley Rd
Beach Rd
The Code of Virginia states that 'the comprehensive plan shall be general in nature, int that it shall designate the general or approximate location, character, and extent of each feature shown on the plan- -' The land use boundaries shown hem should therefore be considered generalized. These boundaries and the future development potential of any property based on the recommendations of this plan should be confirmed with the Chesterfield County Planning Department
The exact right of way widths and proposed road alignments should be verified with the Chesterfield County Transportation Department
newplan.emf 130,000

Supporting Document A

(Revised & updated: 4/3/07)

Upper Swift Creek Plan Amendment Existing Conditions and Issues

A. Plan Boundaries

The boundaries of the Upper Swift Creek Area Plan are the Route 288 Corridor Plan to the north, the Southern and Western Area Plan and Central Area Plan to the south, Powhite/Route 288 Area Plan the to the east, and Powhatan County to the west. A small portion of the adopted Upper Swift Creek Plan lies north of Midlothian Turnpike and east of Route 288, and is physically separated from the bulk of the Upper Swift Creek Plan by the Route 288 Corridor Plan.

B. Magisterial Districts

The Upper Swift Creek Plan lies within the Matoaca Magisterial District (about 82 percent of the study area geography), within the Clover Hill Magisterial District (about 14 percent of the study area geography), and within the Midlothian Magisterial District (about 4 percent of the study area geography).

C. Plan Status

The study area of this plan amendment includes most of the geography of the current Upper Swift Creek Plan (adopted in 1991). That small portion of the 1991 plan physically separated from the study area by the Route 288 Corridor Plan is not included in the geography of this plan amendment, but will be included in the Robious Area Plan amendment currently under review. The study area includes the majority of the Upper Swift Creek watershed within the jurisdiction of Chesterfield County. The geography of the plan amendment is approximately 57 square miles in area, comprising approximately 13 percent of the land area of the county.

D. Existing Zoning and Land Use Patterns

Existing zoning and land use patterns within the study area reflect predominantly a mix of residential and agricultural zoning and uses. Most of the area's commercial zoning and uses are located along Rt. 360. Rt. 360 provides a major east/west vehicular access, linking the study area with the rest of the county to the east and with Amelia County to the west. Route 288 provides a major north/south vehicular access, linking the study area with the rest of the county to the north and south as well as access to Powhatan and Henrico Counties to the north. Powhite Parkway provides additional major vehicular access to the northeast portions of Chesterfield County and to the City of Richmond. Planned improvements to Powhite

Parkway will further enhance vehicular access between the study area and the surrounding region.

As noted herein, the study area includes the majority of the Upper Swift Creek Watershed that lies within the jurisdiction of Chesterfield County. This watershed supplies Swift Creek Reservoir, currently a significant source of drinking water for the county and a major amenity for area residents.

As of December 31, 2006, approximately 45 percent of the study area was zoned agriculturally, of which 60 percent had minimal improvements. Residential zoning accounted for approximately 47 percent of the land within the study area, of which 58 percent was minimally improved. Office, commercial and industrial zoning accounted for about 8 percent of the area, of which 65 percent had yet to be developed.

Residential zoning within the study area, as a percentage of overall zoning, is higher than the countywide average (47 percent for the study area compared to 35 percent countywide). The overall density for residential development is about the same as that for residential development in the county as a whole.

The study area includes existing and planned residential neighborhoods of varying ages and character, including: single family residences (including mobile homes) on acreage parcels; single family residences in subdivisions; townhouse subdivisions; and multi-family dwellings.

An examination of land use data identified 16,186 dwelling units within the study area as of December 2006. The 2006 data also suggests that there was enough vacant land already zoned for residential use within the study area to permit the development of an additional 15,256 dwellings. Under the current adopted plan, 19,652 more dwellings could also potentially be built on agriculturally zoned vacant land recommended by the plan for residential development, for a potential adopted plan build-out total of about 51,094 dwellings (a 215 percent increase over the number of dwellings in 2006). Analysis of the proposed Upper Swift Creek Plan, projects a total of
43,434 dwellings by plan build-out, not including any subsequent development in the recommended deferred growth area.

Significant public/semi public uses within the study area include: Horner Park; Clover Hill Library; Alberta Smith, Clover Hill, Spring Run, Swift Creek, and Woolridge Elementary Schools; Swift Creek Middle School; Clover Hill and Cosby High Schools; a temporary policing station; Clover Hill and Swift Creek Fire Stations; and Manchester Volunteer Station. Harpers Mill Elementary School is under construction. Semi-public uses include area churches, a private school (Millwood School), and golf courses. Swift Creek Reservoir provides a visual amenity to the public - however, access to the Reservoir for recreational purposes is restricted and generally not available to the public at large.

E. Demographic Information

The following information comes from 2000 Census data and Chesterfield County's land use database for 2006 (through December 31, 2006), together with additional information on population and housing gathered from county assessment records and studies.

1. Population

A review of Chesterfield County's Land Use database for 2006 suggests that the number of people living in the study area increased between January 1, 1994 and December 31, 2006, from approximately 27,900 to approximately 42,375, or an increase of about 52 percent. Estimates of countywide population growth for the same time period indicate that county population grew by about 35 percent. Most of this population growth has occurred in new subdivisions developing west of Woodlake and south of the Rt. 360 commercial corridor, as new households continue to move into the area.

The study area population estimate represents approximately 14 percent of the county's estimated total population for 2006. Given that the study area includes approximately 13 percent of the area of the county, the population density of the study area is comparable to that for the county as a whole.

2. Household Income

The 2000 Census year estimated household income for census tracts that encompass the study area was approximately $71,682, or approximately 122 percent of the Chesterfield County average of $58,537 for the 2000 Census year.

3. Housing

The study area has a mix of older and newer neighborhoods and a mix of housing types. The average assessment of single-family residences in 2006 was $264,295, compared to a county average of $227,347. The average age of residences was estimated to be about 16 years, compared to a county average of 24 years.

4. Residential Development Patterns

Residential development within the study area is characterized primarily by single-family residences on acreage parcels, by single-family and townhouse residences in subdivisions, and by apartments and condominiums in multi-family complexes. The following generally summarizes residential development within the study area:

- Single-family residences on acreage parcels front most of the arterial roads in the western and southern fringes of the study area.

- Single-family and townhouse residences in subdivisions include a mix of older and newer neighborhoods, with most new single-family subdivisions developing west of Woodlake and south of the Rt. 360 commercial corridor.

- Several multi-family complexes are within the study area. These are primarily located along, or in proximity to Rt. 360, and within, and north of, Brandermill and Woodlake.

F. Commercial Development Pattern

Commercial uses within the study area consist primarily of businesses on parcels fronting Rt. 360, with a significant node of commercial, office and industrial development in the vicinity of the Gentio Road/Old Hundred Road intersection.

G. Employment and Jobs

In the second quarter of 2003, approximately 19,448 employed persons resided in the study area. During the same period area businesses generated approximately 7,182 jobs. These estimates suggest the study area is a net exporter of workers, by a ratio of about 2.7 workers living in the area per job within the area.

H. Tax Revenue

It is difficult to obtain information about tax revenue generated for specific geographies of the county. However, a review of county assessment data for land and improvements (December 31, 2006) suggests that the study area is a net generator of real estate tax revenue. Specifically, county assessment records indicate that land and improvements within the study area account for approximately 16 percent of total assessed taxable value countywide. As noted herein, the population of the study area is approximately 13 percent of countywide population estimates. These estimates suggest that the study area generates slightly more per-capita real estate tax revenue than that generated countywide.

A further analysis of real estate assessment records suggests that approximately 10 percent of the county's assessed value for all office, commercial and industrial improvements (exclusive of land value) are located in the study area. This might suggest that 10 percent of the office, commercial and industrial development of the county is located in the study area, which, as noted herein, includes 13 percent of the county's land area and 14 percent of the county's population.

I. Environmental Features

As noted herein, the study area includes most of the Upper Swift Creek Watershed and Swift Creek Reservoir. The Swift Creek Reservoir is approximately 1700 acres in surface area and serves as a source of water for Chesterfield County citizens. The reservoir also supports fish and other aquatic life. In addition to the reservoir, there are tributary streams and adjacent wetlands in the study area. There are also non-tidal

wetlands throughout the study area that are not associated with any of the streams or the reservoir.

The complex of streams and wetlands in the watershed provide wildlife habitat, support aquatic life, serve as a recreational resource and add to the aesthetics of the study area. The tributary streams also have floodplains and Resource Protection Areas (RPAs) adjacent to them (approximately 14 percent of the study area). The floodplains and RPAs protect the streams by filtering out pollutants in stormwater runoff. These areas are identified in the Water Quality Protection Plan as environmentally sensitive features, and land uses and activities within them are limited by county ordinance. Additional environmentally sensitive areas may exist in the study area; however, these areas have not yet been calculated. Further analysis of these features would occur with new development.

The study area is generally characterized by flat to gently rolling topography typical of the Piedmont and Triassic physiographic regions. Soils in the area can be characterized as moderately to well drained. There are some areas, however, that have clayey or hydric soils, which do not drain well. Significant slopes and erodible soil conditions exist along some stream banks.

J. Utilities

Public Water and Wastewater Service

The area encompassed by the Upper Swift Creek Plan amendment is supported by public water and wastewater infrastructure that has been planned to accommodate future growth while maintaining quality service for existing residential, commercial and industrial areas.

Water System

The County's public water system is an interconnected system which draws treated water from three sources: the Swift Creek Reservoir, the City of Richmond, and the Appomattox River Water Authority (ARWA) at Lake Chesdin. While the amount of water taken from Swift Creek Reservoir is anticipated to remain at a constant rate, existing long-term contracts with the City of Richmond and the ARWA insure that sufficient water will be available to meet the domestic and fire protection demands of future as well as existing development in the Upper Swift Creek watershed. The existing water system consists of transmission and distribution lines, booster pump stations and elevated storage tanks.

The County's Water and Wastewater Facilities Plan reflects that development in the upper portion of the Upper Swift Creek Plan amendment area will be served by water line extensions from an existing 24" line along Rt. 60, and by the existing Huguenot Springs and Midlothian tanks. Water lines will need to be constructed along Old Hundred Road, Otterdale Road north of Genito Road, and Mt. Hermon Road. Development in the central

and lower portion of the Plan area will be served by extensions from existing 24" lines along Rt. 360 and Spring Run Road, by existing 16" lines along Winterpock Road, Genito Road and Woolridge Road, and by the existing Clover Hill and Physic Hill tanks. Water lines will need to be constructed along Rt. 360 west of Hampton Park Boulevard, DuVal Road, and Genito Road west of Otterdale Road. It is anticipated that those lines will be constructed by private developers.

The County's Water and Wastewater Facilities Plan reflects a future water tank west of Otterdale Road, between DuVal Road and Genito Road, and on Rt. 360 in the vicinity of Grange Hall elementary school. The Water and Wastewater Facilities Plan also reflects future construction of the "Southwest Corridor Transmission Line", which will begin at the ARWA treatment plant at Lake Chesdin, follow River Road to Riverway Road, run along Riverway Road to Beach Road, run east along Beach Road to the future Otterdale Road Extended, run along Otterdale Road Extended through the Southern Land Sales tract, and connect to a future water line along Rt. 360, west of Winterpock Road. This transmission line, along with two new pump stations and a ground storage tank, will move water from the ARWA facility into the western Rt. 360 corridor, will feed the future "Grange Hall" tank, and will support existing development as well as future growth reflected by the Upper Swift Creek Plan.

Wastewater System

The "backbone" of the public wastewater system that serves the Upper Swift Creek Plan area is the Upper Swift Creek Transport System, which was completed in 1990. This facility includes a 60" diameter trunk along Genito Road at the upper end of Swift Creek Reservoir, the Upper Swift Creek Wastewater Pump Station located north of Genito Road at the mouth of Little Tomahawk Creek, and dual force mains which convey wastewater east to the Bailey's Bridge Road Wastewater Pump Station. At the present time a single force main conveys wastewater from that location east to the Proctors Creek Wastewater Treatment Plant. The County's Water and Wastewater Facilities Plan includes future expansion of the Upper Swift Creek pump station, replacement of the Bailey's Bridge Road pump station with a much larger facility, and construction of two additional force mains to convey wastewater to the treatment plant. Construction of the new Bailey's Bridge Road pump station and the additional force mains began in early 2004 and completion is projected for late 2005. These system upgrades will insure that adequate capacity will be available in the downstream facilities to support future growth reflected by the Upper Swift Creek Plan.

The Water and Wastewater Facilities Plan reflects future large wastewater lines that will be necessary along Swift Creek, Tomahawk Creek, Otterdale Creek, Horsepen Creek, and Blackman Creek. Extensions of existing wastewater lines along West Branch Creek, Spring Run Creek, Dry Creek, and Fuqua Branch Creek will also be needed. It is anticipated that those lines will be constructed by private developers.

The Upper Swift Creek Transport System was designed and constructed to support future development in the Upper Swift Creek watershed based on the higher land use densities

as reflected in the Powhite/Route 288 Development Area Plan, which predates the Upper Swift Creek Plan. With adoption of the Upper Swift Creek Plan in 1991, and the subsequent plan amendment in 2000, significantly lower residential development densities were recommended, which have been consistently followed for developments approved by the County over the past thirteen years. These lower densities have made available a limited amount of system capacity within the Upper Swift Creek Transport System, which is not anticipated to be utilized by development within the Upper Swift Creek watershed. Future extensions of wastewater lines needed for development of the Magnolia Green site will be oversized to include that additional capacity. Future lines constructed within Magnolia Green, along Blackman Creek and its tributaries, will also be oversized to include the additional capacity, and will provide access points for a very limited area along the south side of Rt. 360, at the southeast and southwest quadrants of the future Powhite Parkway interchange. This area is in the upper end of the Appomattox River watershed. Development in this limited area would require the construction of one or two strategically placed pump stations, with force mains extending across Rt. 360, in order to access the public wastewater system and utilize that additional system capacity.

Creation of Water and Wastewater Assessment Districts

The County does not have funds appropriated for the extension of public water and wastewater service into areas of existing development. Since 1989 the County's policy to address requests for service has been to pursue the creation of "assessment districts". If the majority of property owners in a specific area desire public water and/or wastewater service the Board of Supervisors may hold a public hearing, and consider the creation of an assessment district. If approved, the Board will appropriate the funds for that specific project and all owners, whose property abut the utility line, will be assessed a share of the total project costs as a means of reimbursing the County. The assessment will be recorded as a lien on the property, and the owners can pay the assessment in one lump sum payment, or choose bi-annual payments for up to a 20-year period. Property owners aged 65 years or older who occupy a dwelling on their property may request that their assessment payments be deferred until such time as the dwelling is no longer occupied by an owner aged 65 or older, or is sold or otherwise conveyed to another person. At that time the suspension of payments would cease, and the entire assessment, plus any accrued interest would be due.

K. Police Service

There is a temporary police precinct serving the area. It is anticipated that this facility will become permanent by 2007 – 2008. The need for additional police service facilities is addressed in the Public Facilities Plan, which was updated in 2004.

L. Fire Service

There are two fire stations and one volunteer station within the study area. The need for additional fire service facilities is addressed in the Public Facilities Plan, which was updated in 2004.

M. Schools

The study area lies within the Alberta Smith, Clover Hill, Evergreen, Grange Hall, Spring Run, Swift Creek, Watkins and Woolridge Elementary School zones, the Bailey Bridge, Midlothian and Swift Creek Middle School Zones, and the Clover Hill, Manchester and Midlothian High School zones. Cosby High School opened in 2006 – 2007. Harpers Mill Elementary School is scheduled to open in 2007 – 2008. The need for additional school facilities is addressed in the Public Facilities Plan, which was updated in 2004.

N. Libraries

The study area is served by the Clover Hill and Midlothian Libraries. The need for additional library facilities is addressed in the Public Facilities Plan, which was updated in 2004.

O. Parks and Recreation

Horner Park and the Clover Hill Athletic Facility are located within the study area. The need for additional park facilities is addressed in the Parks and Recreation Master Plan and Public Facility Plan, which was updated in 2004.

P. Transportation

Route 360 provides the major east/west vehicular access route in the study area, linking the area with the rest of the county to the east and with Amelia County to the west. Route 288 provides the major north/south vehicular access route in the study area, linking the study area with the rest of the county to the north and south, and also provides major vehicular access to Powhatan and Henrico Counties to the north. Powhite Parkway provides additional major vehicular access to the northeast areas of Chesterfield County and to the City of Richmond. Planned improvements to Powhite Parkway will further enhance vehicular access between the study area and the surrounding region.

Continued development in the western portions of the county is putting pressure on the existing road network to accommodate increased traffic from new residents and businesses moving into the area.

Roads in the western part of the Upper Swift Creek Plan area mainly consist of substandard two-lane roads (ie. pavement width less than 24 feet, with shoulders of less than 2 feet in width). Most of these roads are currently carrying relatively low volumes of traffic. Sections of Genito Road, Woolridge Road, Mount Hermon Road, Duval Road, Otterdale Road, Hallsboro Road, and County Line Road are narrow, with no shoulders, and poor vertical and horizontal alignments. Based on the most recently available traffic counts, most of these roads are carrying less than 2,000 vehicles per day.

In the eastern part of the plan area, substandard two-lane roads are carrying significantly higher volumes of traffic. Bailey Bridge Road in the vicinity of Manchester High School and Bailey Bridge Middle School currently carries approximately 8,700 vehicles per day. Genito Road east of Woolridge Road carries 13,605, Woolridge Road carries 10,800 over the Swift Creek reservoir, and Old Hundred Road north of Millridge Parkway carries 11,135. These volumes approach or exceed the capacity of these facilities.

The following Tables list the most recent Average Daily Traffic (ADT) volumes on Primary and major Secondary roads in the Plan area:

PRIMARY ROUTES - TRAFFIC VOLUME HISTORY
Upper Swift Creek Plan Area
Updated: May 2005

Road	Rte #	Count Located Between	2001	2002	2003	2004	2005
Powhite Parkway	76	Route 288 and Charter Colony Parkway	-	-	20,461	20,000	-
Route 288	288	Courthouse Road and Hull Street Road	25,704	-	35,701	38,000	-
Route 288	288	Hull Street Road and Powhite Parkway	26,646	-	34,484	37,000	-
Route 288	288	Powhite Parkway and Lucks Lane	-	-	-	-	-
Route 288	288	Lucks Lane and Woodridge Road	-	-	-	16,000	-
Route 288	288	Woodridge Road and Midlothian Turnpike	-	-	-	16,000	-
Route 288	288	Midlothian Turnpike and Robious Road	-	-	-	-	-
Route 288	288	Robious Road to James River Bridge	-	-	-	-	35,898
Hull Street Road	360	Appomattox River and Skinquarter Road	-	14,000	18,020	16,000	-
Hull Street Road	360	Skinquarter Road and Woodlake Parkway	-	20,000	22,353	-	-
Hull Street Road	360	Woodlake Parkway and Winterpock Road	44,110	-	44,941	-	-
Hull Street Road	360	Winterpock Road and Old Hundred Road	61,549	-	68,999	-	-
Hull Street Road	360	Old Hundred Road and Route 288	52,491	52,000	-	-	-

Secondary Road Traffic Volumes
Upper Swift Creek Plan Area
Updated: August 2005

Road	Rte #	Count Located Between	2000	2001	2002	2003	2004	2005
Bailey Bridge Rd	654	Claypoint and Schools	8,045	-	11,746	10,819	-	-
Bailey Bridge Rd	654	Schools and Deer Run Drive	5,575	-	-	6,801	-	8,688
Bailey Bridge Rd	654	Deer Run Drive and Spring Run	3,080	-	-	3,453	-	-
Beach Road	655	Winterpock and Coalboro	1,217	-	1,000	1,300	-	-
Beach Road	655	Coalboro and Beaver Bridge	553	-	510	985	-	-
Charter Colony Parkway	754	Miners Trail & Powhite Pkwy	17,694	-	-	na	-	-
Charter Colony Parkway	754	Powhite Pkwy and Genito	-	21,572	19,000	21,410	-	-
County Line Road	606	Mount Hermon and Hallsboro	215	-	-	-	-	228
County Line Road	671	Hallsboro & Midlothian Tpke	-	-	-	670	-	-
Duval Road	668	Otterdale and Skinquarter	-	-	-	240	-	-
Genito Road	604	Warbro and Charter Colony Parway	-	-	13,376	-	-	-
Genito Road	604	Charter Colony & Brandermill Pkwy	14,481	-	-	-	-	-
Genito Road	604	Brandermill Pkwy & Woolridge	10,838	-	11,227	13,603	-	-
Genito Road	604	Woolridge and Otterdale	3,759	-	-	5,372	-	4,937
Genito Road	604	Otterdale and Mount Hermon	3,225	-	-	2,390	-	2,947
Genito Road	604	Mount Hermon and Moseley	2,142	-	-	4,483	-	-
Genito Road	604	Moseley and W County Line	-	-	-	1,679	-	-
Hallsboro Road	671	County Line Rd & Mt Hermon	-	-	-	290	-	-
Happy Hill Road	619	Branders Bridge & Harrowgate	2,949	-	3,200	2,648	-	-
Happy Hill Road	619	Harrowgate and S Chester	4,779	-	-	5,106	-	-
Happy Hill Road	619	S Chester and Pheasant Run	3,718	-	-	3,976	-	-
Hensley Road	659	Spring Run and Soccer Complex	-	-	-	950	-	-
Moseley Road	605	Genito and West County Line	466	-	470	440	-	-
Mount Hermon Rd	606	Genito and County Line Road	-	-	-	240	-	-
Mount Hermon Rd	671	County Line Rd & Hallsboro	182	-	-	-	-	207
Mount Hermon Rd	884	Hallsboro and Old Hundred	-	-	-	420	-	-
Old Hundred Rd	652	Dry Bridge and Otterdale	4,662	-	5,802	5,831	-	-
Old Hundred Rd	652	Otterdale & Brandermill Pkwy	5,659	-	6,301	7,067	-	-
Old Hundred Rd	652	Brandermill Pkwy & Powhite Pkwy	-	-	-	15,605	-	-
Old Hundred Rd	754	Genito and Millridge Parkway	8,391	-	11,135	-	-	-
Old Hundred Rd	754	Millridge Pkwy and Hull Street Rd	13,859	-	-	-	-	-
Otterdale Road	667	Midlothian and Old Hundred	1,356	-	-	1,209	-	1,100
Otterdale Road	667	Old Hundred and Genito	998	-	1,155	1,090	858	-
Otterdale Road	667	Genito and Duval	-	-	-	1,059	-	-
Otterdale Road	667	Duval and Woolridge	-	-	1,100	1,282	906	-
Otterdale Road	667	Woolridge and Hull Street Rd	-	-	1,885	1,855	2,853	-
Spring Run Road	702	Hull Street Road & McEnnally	-	-	-	6,495	-	-
Spring Run Road	662	McEnnally and Bailey Bridge	-	-	-	4,284	-	7,083
Spring Run Road	654	Bailey Bridge and Hensley	4,293	-	-	4,955	-	-
Winterpock Road	621	Hull Street Road and Bethia	-	-	-	9,154	10,792	-
Winterpock Road	621	Bethia and Beach	7,139	-	-	-	7,886	-
Woolridge Road	668	Otterdale Road to Foxcroft	829	1,094	1,121	1,328	1,553	-
Woolridge Road	668	Timber Bluff Pkwy & Crown Point	8,062	7,942	-	9,806	10,143	10,937
Woolridge Road	668	Crown Point & Genito Road	-	-	-	-	-	10,802

There are several roads in the plan area that have no shoulders, and that currently carry 4,000 or more vehicles per day. To accommodate this existing volume of traffic, these roads should be improved to 24 feet of pavement, with an eight foot paved shoulder, with vertical and horizontal alignments improved as necessary.

The following Table lists Levels of Service on roads in the Plan area, calculated using the most recent available data. Level of Service "E" represents roads that are currently at capacity. Level of Service "F" represents roads carrying traffic volumes that exceed the ideal capacity of the road (also see the attached map).

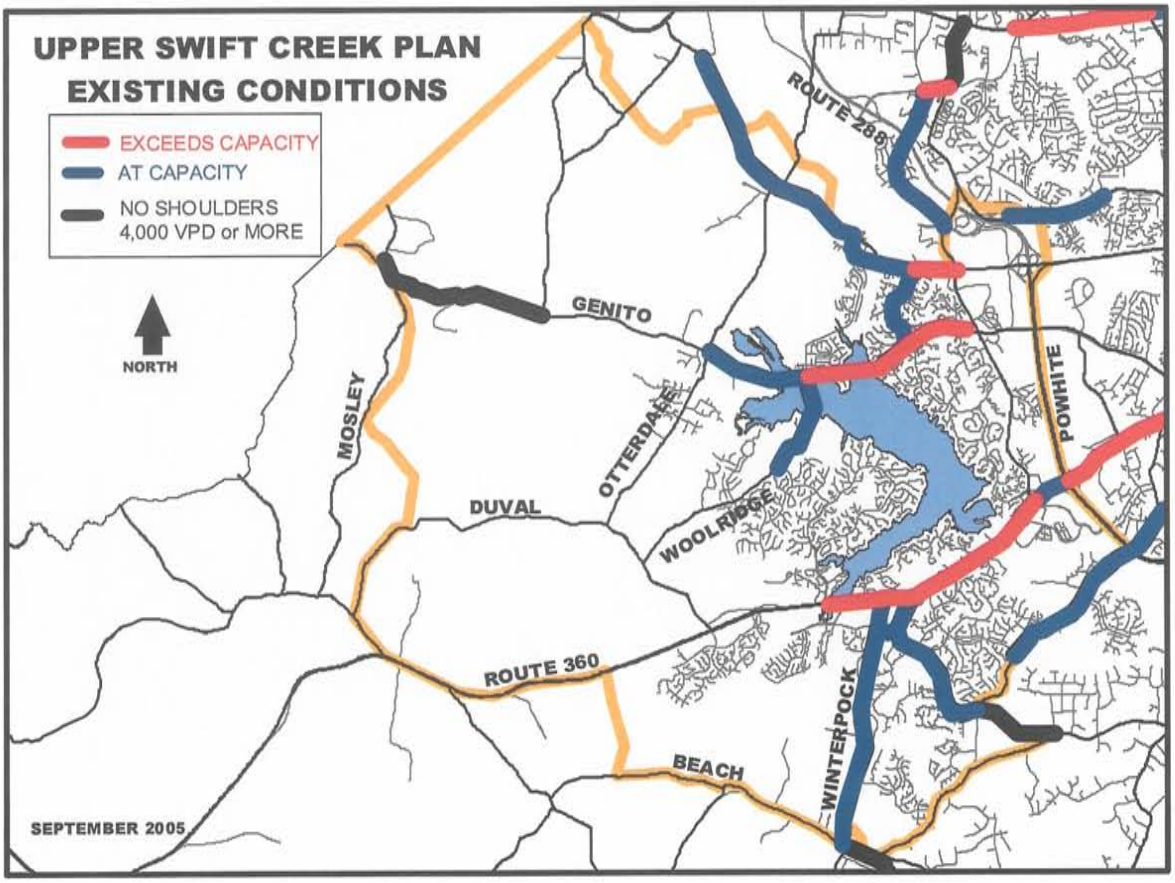
Upper Swift Creek Plan

Primary and Secondary Road Levels of Service

Updated: September 2005

Road Name	Rte #	Count Located Between	# of Lanes	Latest ADT	Level of Service
Powhite Parkway	76	Route 288 and Charter Colony Pkwy	4	20,461	B
Route 288	288	Courthouse Road and Hull Street Road	4	35,701	B
Route 288	288	Hull Street Road and Powhite Parkway	4	34,484	B
Hull Street Road	360	Skinquarter Road and Woodlake Pkwy	4	22,353	A
Hull Street Road	360	Woodlake Pkwy and Winterpock Road	4	44,941	F
Hull Street Road	360	Winterpock Road & Old Hundred Road	4	68,999	F
Hull Street Road	360	Old Hundred Road and Route 288	6	52,000	E

Road Name	Rte #	Count Located Between	# of Lanes	Latest ADT	Level of Service
Bailey Bridge Road	654	Claypoint Road & Schools Entrance	2	10,819	E
Bailey Bridge Road	654	Schools Entrance and Deer Run Drive	2	8,688	E
Bailey Bridge Road	654	Deer Run Drive and Spring Run Road	2	3,453	D
Baldwin Creek Road	730	Hull Street Road and Beach Road	2	911	B
Beach Road	655	Riverway Road and Winterpock Road	2	5,460	D
Beach Road	655	Winterpock Road and Coalboro Road	2	1,300	B
Beach Road	655	Coalboro Road & Beaver Bridge Road	2	985	B
Brandermill Pkwy	1921	Genito Road and Powhite Parkway	2	7,970	E
Charter Colony Pkwy	950	CentrePointe and Powhite Pkwy	4	17,694	B
Charter Colony Pkwy	950	Powhite Pkwy and Genito Road	4	21,410	C
County Line Road	606	Mount Hermon Road & Hallsboro Road	2	228	A
County Line Road	671	Hallsboro Road & Midlothian Tpke	2	635	B
Duval Road	668	Otterdale Road & Skinquarter Road	2	240	A
Genito Road	604	Warbro Road & Charter Colony Pkwy	4	13,376	A
Genito Road	604	Charter Colony Pkwy & B'mill Pkwy	2	14,675	F
Genito Road	604	Brandermill Pkwy & Woolridge Road	2	13,603	F
Genito Road	604	Woolridge Road and Otterdale Road	2	4,937	E
Genito Road	604	Otterdale Road & Mount Hermon Road	2	2,947	D
Genito Road	604	Mount Hermon Road & Moseley Road	2	4,483	D
Genito Road	604	Moseley Road and West County Line	2	1,679	C
Hallsboro Road	671	County Line Road & Mt Hermon Road	2	165	A
Hensley Road	659	Spring Run Road and Soccer Complex	2	2,105	C
McEnnally Road	702	Winterpock Road & Spring Run Road	2	2,753	E
Moseley Road	605	Genito Road and West County Line	2	440	B
Mount Hermon Rd	606	Genito Road and County Line Road	2	220	B
Mount Hermon Rd	671	County Line Road & Hallsboro Road	2	207	A
Old Hundred Road	652	Dry Bridge Road and Otterdale Road	2	5,831	E
Old Hundred Road	652	Otterdale Road & Brandermill Pkwy	2	7,067	E
Old Hundred Road	754	Brandermill Pkwy & Powhite Pkwy	2	15,605	F
Old Hundred Road	754	Genito Road and Millridge Pkwy	2	10,373	D



There are several roads in the plan area that are in the State highway system that are currently unimproved/unpaved:

1. Route 796 (Chesterfield Baptist Church on Hull Street Road) – no count available on short unpaved section
2. Ledo Road (Route 795 north of Hull Street Road) – no count available on short unpaved section
3. Lacy Farm Road (Route 729 east of Moseley Road) – 96 vehicles per day in 2005
4. Scottwood Road (Route 670 west of Old Hundred Road) – 71 vehicles per day in 2003

In order to qualify for paving with State funds, these roads must be carrying a daily traffic volume of over 50 vehicles per day. Actual paving of roads that qualify would be dependent on the availability of funding.

The following Table shows the number of reported traffic accidents in the plan area in 2002, 2003, and 2004. Accidents are listed by severity (Fatality/Injury/Property Damage only), and by type.

Traffic Accident Statistics - Reported Crashes

2002, 2003, and 2004

(Accident statistics provided by the Chesterfield County Police Department)

Type of Accident	2002	2003	2004	Totals
Fatality	6	4	5	15
Injury	156	186	209	551
Property Damage Only	588	675	671	1,934
Total reported accidents	750	865	885	2,500

Type of Accident	2002	2003	2004	Totals	Percent
Rearend	283	327	310	920	36.8%
Fixed Object/Off-road	153	173	205	531	21.2%
Angle	145	165	171	481	19.2%
Sideswipe - Same Direction	42	50	56	148	5.9%
Sideswipe - Opposite Direction	30	31	26	87	3.5%
Head-on	3	27	8	38	1.5%
Bike/Pedestrian	3	4	2	9	0.4%
Deer/Other Animal	42	50	36	128	5.1%
Other	49	38	71	158	6.3%
Total reported accidents	750	865	885	2,500	100.0%

The Upper Swift Creek Plan area includes one of the most highly congested road corridors in the County. Drivers on Hull Street Road (State Route 360) between Woodlake Village Parkway and Swift Creek experience extensive travel delays during several hours of the day, and especially during the morning and afternoon rush hours.

Virginia's Surface Transportation Assistance Act (STAA) Truck Routing Map designates Hull Street Road, Route 288, and Powhite Parkway as "Non-Interstate Qualifying Highways". This designation allows oversize vehicles and tandem trailers to use these roadways. Hull Street Road is a major regional east/west truck route. Recent traffic data provided by VDOT indicates that trucks make up approximately 8 percent of the daily traffic volume on Hull Street Road.

The Virginia Department of Transportation (VDOT) Six-Year Improvement Program includes a project to widen Route 360 to six (6) and eight (8) lanes from Winterpock Road to Swift Creek. Widening of the westbound lanes was scheduled to begin in 2005; however, after two advertisements, bids received were too high. Staff hopes the project will be under construction next year. Additional funding for the second phase, widening of the eastbound lanes, is identified in the FY08 and FY 09 years of the current Program. This second phase is included in the recent county bond referendum. The county hopes to accelerate the project and have it under construction by Spring 2006.

Additional projects in the Plan area include:

1. A project to reconstruct two substandard curves on Spring Run Road between McEnnally Road and Bailey Bridge Road. Construction is scheduled to begin in Fall 2007.

2. A project to improve two substandard curves on Bailey Bridge Road. The county is managing these projects. Construction is anticipated to begin in Summer 2006.

3. A project to reconstruct Bailey Bridge Road as a two-lane road from Claypoint Road to Manchester High School. The project is not anticipated to begin until Spring 2010.

4. A project to make spot safety improvements on Woolridge Road south of Crown Point. The county was successful in obtaining federal safety funds for this location. Construction is expected to begin in 2008.

5. A project to add a fourth westbound lane on Hull Street Road from Route 288 to Old Hundred Road/Commonwealth Center Parkway. Construction is planned for Spring 2006.

The section of Woolridge Road that crosses the Swift Creek Reservoir is not currently in the State Highway System. This is one of a relatively few major Secondary roads in Chesterfield County that are not maintained by VDOT. Maintenance of this short section of roadway is the responsibility of Chesterfield County.

VDOT assigns a "Sufficiency Rating" to major culvert and bridge structures based on several factors, including structural adequacy, functional obsolescence, and essentiality for public use. If the Sufficiency Rating for a culvert or bridge is less than 80, but more than 50, the structure is eligible for rehabilitation funding. A structure rated less than 50 qualifies for rehabilitation or complete replacement.

Based on information provided by VDOT, four structures in the plan area are rated between 50 and 80:

1. Woodlake Village Parkway (70.0) – over West Branch Creek, north of Village Square Parkway
2. Old Hundred Road (65.0) – over Nuttree Branch, between Brandermill Parkway and Millridge Parkway
3. Otterdale Road (52.1) – over Otterdale Branch, just south of Genito Road
4. Mount Hermon Road (50.7) – over Swift Creek, just south of County Line Road

Two are rated at less than 50:

1. Genito Road (41.6) – easternmost structure over Swift Creek Reservoir
2. Genito Road (29.3) – westernmost structure over Swift Creek Reservoir

In addition, there are several bridges within the plan area that have vehicle weight limits, which restricts their use by heavy truck traffic.

There are two at-grade railroad crossings in the plan area. One crosses County Line Road north of Mount Hermon Road, and one crosses at the intersection of Mount Hermon Road and Hallsboro Road. Railroad crossing gates were recently installed at these crossings.

The County's Bikeway Plan was adopted by the Board of Supervisors in 1989. The purpose of the Bikeway Plan is "to designate a coordinated system of bike facilities to connect County and State parks with other high bike traffic generators such as schools." The *Bikeway Plan* is not intended to designate roads that are appropriate for bicycle travel, but to identify routes where bikeway facilities should be provided in conjunction with future road improvement projects. Several roads in the Upper Swift Creek Plan area are included on the Bikeway Plan. Bike facilities were included in the widening of Genito Road, from Route 360 to Fox Chase Lane, and in the intersection project at Genito Road and Woolridge Road.

Through truck traffic is prohibited from using Old Hundred Road to travel between Midlothian Turnpike and Genito Road, and between Genito Road and Hull Street Road. In order to violate these prohibitions, trucks must travel the entire length of the restricted route without stopping for business purposes. Trucks that have business along these routes are authorized to use the roads.

Blank page

Supporting Document B

(Revised & updated: 4/3/07)

Upper Swift Creek Plan Amendment

Land Use Analysis - Residential, Office, Commercial and Industrial

A. Purpose of Analysis

This analysis attempts to anticipate the need for residential, office, commercial and industrial land within the study area based on potential market demand and community-wide, land use planning practices. Specifically, real estate professionals often analyze potential uses for property based on the principle of "highest and best use", a term often defined as 'the legal use of a parcel of land which, when capitalized, will generate the greatest net present value of income'. Implied in the term is the notion that markets forces (supply, demand, competition, etc.) can best determine how land should be used. However, "highest and best use" is only one principle applicable to a land use analysis. Another, equally important principle is "most appropriate use" which, borrowing from the Code of Virginia, might be defined as 'a coordinated, adjusted and harmonious development of lands within a jurisdiction which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of that jurisdiction's citizens'. Consideration of both principles is appropriate in a land use plan analysis.

This analysis makes no attempt to determine the current or short-term marketability of any one parcel for any one use. Rather, it attempts to anticipate future needs for broad categories of uses throughout the study area over time. In addition, this analysis does not attempt to suggest the specific relationships of these uses to one another within the study area, or within the wider community. These relationships are best determined by means of a Comprehensive Plan amendment. Private market forces (availability and price of land, location, character and age of competing businesses, site specific characteristics such as topography and visibility from roads, etc.) would decide the desirability of a specific use on one parcel over another, as well as the timing for developing such use, based on the principle of 'highest and best use'. The zoning process would determine the appropriateness of such use on a case-by-case basis by applying the guidelines for desirable land use development patterns as outlined in the plan.

Demand for additional, or differently located, land in any zoning classification or land use category is influenced by many factors, some of which are hard to quantify or predict. In addition, limitations on the types and quality of readily available data, together with differing opinions on the significance of this data and how best to analyze, interpret and use it, further complicate the task of predicting future land use needs. For these reasons,

this analysis must be viewed as one of many tools used to craft a land use plan amendment for the Upper Swift Creek Plan study area.

B. Study Area Boundaries and Existing Conditions

The boundaries of the Upper Swift Creek Area Plan includes the Route 288 Corridor Plan to the north, the Southern and Western Area Plan and Central Area Plan to the south, Powhite/Route 288 Area Plan the to the east, and Powhatan County to the west. A small portion of the adopted Upper Swift Creek Plan lies north of Midlothian Turnpike and east of Route 288, and is physically separated from the bulk of the Upper Swift Creek Plan by the Route 288 Corridor Plan. The Plan geography is approximately 57 square miles in area, comprising approximately 13 percent of the land area of the county.

The study area of this Plan amendment includes most of the geography of the currently adopted Upper Swift Creek (adopted in 1991). That small portion of the 1991 Plan physically separated from the study area by the Route 288 Corridor Plan is not included in the geography of this Plan amendment, but will be included in the Robious Area Plan amendment currently under review. The study area includes the majority of the Upper Swift Creek watershed within the jurisdiction of Chesterfield County.

Existing zoning and land use patterns within the study area reflect a mix of residential and agricultural zoning and uses, with commercial zoning and uses along Rt. 360. Rt. 360 provides a major east/west vehicular access, linking the study area with the rest of the county to the east and with Amelia County to the west. Route 288 provides a major north/south vehicular access, linking the study area with the rest of the county to the north and south, and also provides major vehicular access to Powhatan and Henrico Counties to the north. Powhite Parkway provides additional major vehicular access to the northeast portions of Chesterfield County and to the City of Richmond. Planned improvements to Powhite Parkway will further enhance vehicular access between the study area and the surrounding region.

C. Zoning Activity within the Study Area:

Analysis of past zoning activity is one way to anticipate future demand for residential, office, commercial, and industrial zoning and land uses within the study area. Specifically, land is typically rezoned with an expectation, on the part of the owner/developer, that it can be developed in the future for uses within the new zoning category. The following table summarizes zoning activity within the study area between January1, 1993 and April 1, 2007:

Type of Zoning Activity	Acreage
Rezonings from agricultural to residential classifications	3,970 acres
Rezonings from industrial to residential classifications	17 acres
Rezonings from agricultural to commercial/office classifications	157 acres
Rezonings from residential to commercial/office classifications	23 acres

Rezonings from agricultural to industrial classifications	28 acres
Rezonings from industrial to commercial/office classifications	36 acres

Data compiled from Chesterfield County Planning Department zoning database from January 1993 through March 2007

Zoning activity within the study area since 1993 has significantly increased the inventory of residentially zoned land, followed by slight increases in commercial and office zoned land. The following table summarizes net zoning gains/losses within the study area between January 1, 1993, and April 1, 2007:

Industrial	- 35 acres
Commercial/office	+ 216 acres
Residential	+ 3,964 acres
Agricultural	- 4,155 acres

Data compiled from Chesterfield County Planning Department zoning database from January 1, 1993 through April 1, 2007

The following table summarizes the breakdown of zoning acreage and land usage within the study area as of December 31, 2006:

Upper Swift Creek Plan - Zoning and Development

(Note: the study area represents approximately 13% of the county)

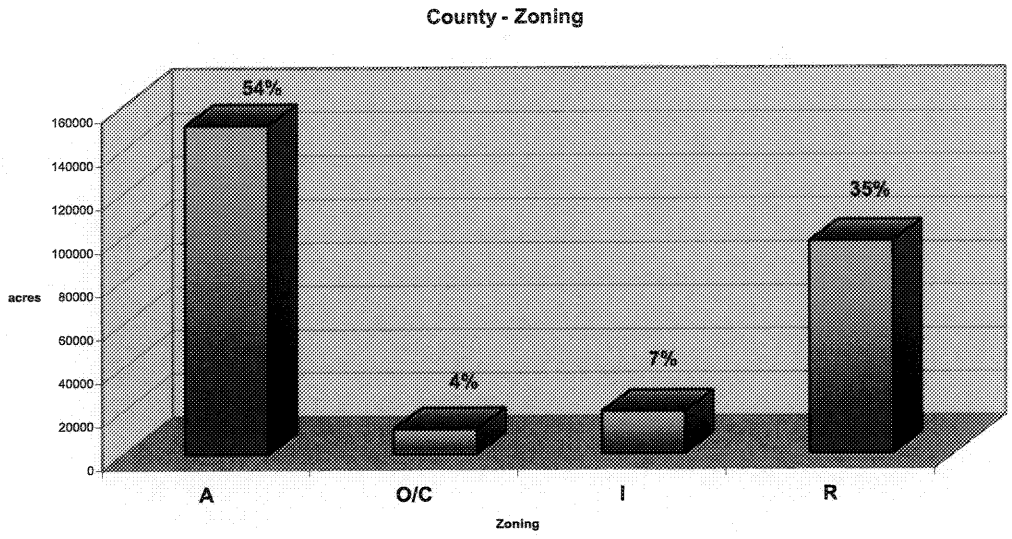
Zoning (as of 3/16/07)	Acres	% of total	% of county-wide by zoning category		Developed (as of12/31/06)	Minimal improvements *	% Minimal improvements *
Agricultural	16,400	45	11		6,458	9,605	60
Residential	17,233	47	19		6,848	9,337	58
Office & Commercial	2,108	6	18		661	1,026	61
Industrial	716	2	4		151	501	77
Totals	36,457	100					

Data for zoning compiled from Chesterfield County GIS data for 3/16/07

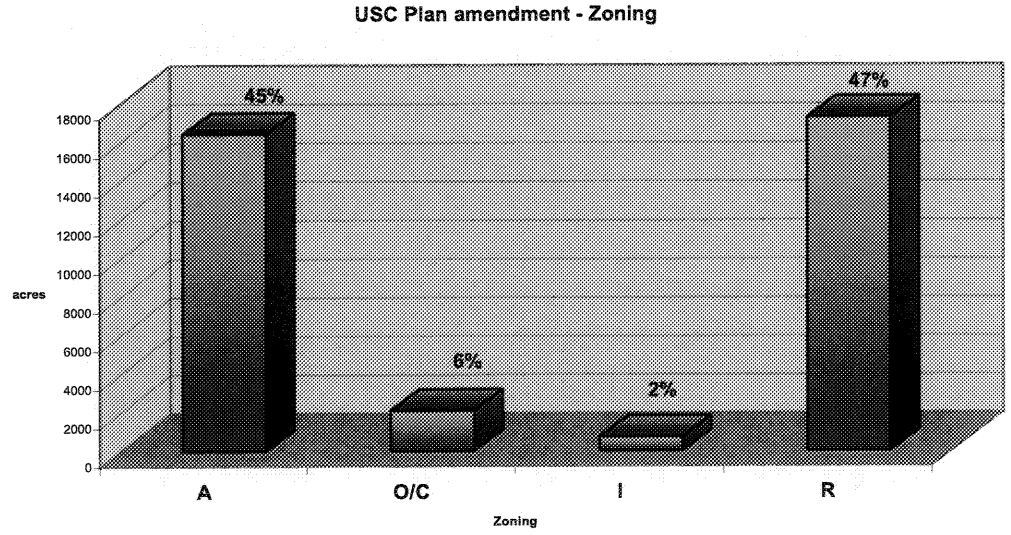
Note: This data is a reflection of base zoning only and does not factor uses that may be permitted through CUPD (such as commercial uses on residentially zoned property, etc.) Data for development compiled from the Chesterfield County Planning Department land use database for 2006 (12/31/06) Acreages do not include land in rights of way.

*Recorded as 'vacant' or 'water' in DPD06 land use database.

Zoning – Countywide (3/16/07)



Zoning – Upper Swift Creek Plan amendment geography (3/16/07)



Zoning activity - - Conclusions: Based on zoning activity over time, the demand for residentially zoned land is strong, followed by the demand for commercially zoned land. Current zoning activity, as judged by zoning cases within the Plan geography currently

pending before the Planning Commission and the Board of Supervisors, suggests that the demand for residentially zoned land will continue to remain strong in coming years.

E. Residential Development Activity within the Study Area:

Another way to anticipate future demand for residential, office, commercial, and industrial zoning and land uses is to examine development activity in recent years. The influx of new families into the area and the development of new housing units in subdivisions and apartment complexes suggest a demand for residential land uses. Site plan approvals for offices, businesses, and manufacturing facilities suggest a demand for office, commercial and industrial land uses. Projecting population growth in and around the study area can also suggest future demand for housing, jobs, services and retail trade.

The following table estimates population growth rates between January 1, 1994 and December 31, 2006 for the study area and the county as a whole:

Chesterfield County Population Growth, January 1, 1994 to December 31, 2006

Area	1994	2006	% Increase
Study Area	27,900	42,375	52
Countywide	226,900	305,886	35

Data for population compiled from estimates in the Chesterfield County Planning Department land use database for 2006 (12/31/06).

Residential development within the study area is characterized primarily by single-family residences on acreage parcels, by single family and townhouse residences in subdivisions, and by apartments and condominiums in multi-family complexes.

1. Single Family

A review of Chesterfield GIS data from January 1, 1994 through December 31, 2006 reveals an increase of 5,486 single-family residences (on acreage parcels and in single-family subdivisions) within the study area during this time period, from 8,192 residences to 13,678 residences, or an increase of about 67 percent. A similar review for the entire county during this time period for single-family residences reveals a countywide increase of about 37 percent.

According to the Residential Report, as of December 31, 2005, the study area had an inventory of about 4,749 undeveloped lots in recorded and tentatively approved subdivisions (approximately 27 percent of all lots within the study area). For the same year, the county as a whole had an inventory of 19,719 such lots (approximately 19 percent of all lots within the county).

2. Multi-family, Condominium, and townhouse

A review of Chesterfield GIS data from January 1994 through December 2006 reveals an increase of 1,033 multifamily, condominium, and townhouse residences within the study area during this time period, from 1,475 residences to 2,508 residences, or an increase of about 70 percent. A similar review for the entire county during this time period for multifamily, condominium and townhouse residences reveals a countywide increase of 51 percent.

According to the Residential Report, as of December 31, 2005, the study area had 269 undeveloped units in multi-family, condominium and townhouse developments (about 11 percent of all such units within the study area). For the same year, the county as a whole had an inventory of 3,046 undeveloped units (approximately 14 percent of all possible multi-family, condominium and townhouse units within the county).

F. Office, Commercial and Industrial Development Activity within the Study Area:

1. Office Development

In recent decades, major office zoning and development activity (office park use) has occurred in the northern portions of the county, along Midlothian Turnpike and the Powhite Parkway corridor. In addition, many properties zoned for such use a decade or more ago have yet to begin developing. However, with the recent completion of improvements to Rt. 288, it is anticipated that such development will occur within, and in proximity to, the northern portions of the study area, in the vicinity of the Powhite Parkway/Rt. 288 interchange. As Powhite Parkway is extended to Rt. 360, additional office-type development should occur in proximity to this intersection.

2. Commercial Development

Commercial development patterns in the study area are primarily characterized by commercial zoning and uses along the Rt. 360 corridor. Some of this existing commercial development consists of small businesses on parcels having depths of 200 to 300 feet. An exception to this pattern is the Genito Road/Old Hundred Road intersection, which has developed as a significant node of commercial and office uses.

a. Commercial - - Shopping Centers

The study area includes several convenience scale, neighborhood scale, and community scale shopping centers and one power center. In addition, there are several planned community scale shopping centers currently under review or anticipated for review in the near future. These shopping centers have overlapping market areas.

An analysis of commercial development within and surrounding the study area suggests that most of the area's current need for retail services is provided by shopping centers and other types of commercial establishments located inside and outside the study area. Specifically, in addition to the shopping centers located within the study area, much of the study area lies within the market areas of several other shopping centers and major retail concentrations, including Chesterfield Crossing and Chesterfield Towne Center. While most retail development within the study area is healthy, some exhibit symptoms of declining retail viability.

The demand for additional shopping center space in the future will be closely tied to market area growth. Specifically, convenience scale shopping centers typically draw most of their customers from an area of about 1.5 miles in radius (shopping center trade area). Neighborhood scale shopping centers typically have a trade area of about three miles in radius, and community scale shopping centers have a trade area of about 4.5 miles in radius. Power and regional centers have trade areas of about 7.5 miles in radius. Super regional centers typically have trade areas of about fifteen miles. While many of the services provided by various types of centers do not translate into competition between types, some services do. In addition, centers of a type that have overlapping trade areas often compete for the same markets. At present, the study area seems to be more than adequately served by existing and planned shopping centers.

Increases in population within the market areas of potential shopping center sites generate most of the demand for additional shopping center space. Other factors affecting the demand for additional shopping center space include market competition, both within and outside the study area, and anticipated area industrial employment. Specifically, existing and future shopping center development outside the study area could lower future shopping center demand within the area through competition for the same markets. Conversely, increases in population and industrial employment from new industrial development within, and in proximity to, the study area would have a positive impact, as a significant amount of retail sales would be generated by new area residents as well as by employees who live outside the corridor's market area but who will shop within the area on their way to and from work. The location of any new shopping center(s) within the study area would also be influenced by: the availability of suitably zoned land; parcel size, configuration, access and visibility; environmental constraints such as floodplains and wetlands; and by guidelines for desirable land use patterns as embodied in the county's Comprehensive Plan. The current Upper Swift Creek Plan (adopted in 1991) suggests locations for new shopping center development in the western portion of the study area, to serve the needs of anticipated area residential development.

b. Commercial - - Freestanding

In addition to existing and planned shopping centers, commercial development within the study area is characterized by freestanding commercial uses along Rt. 360 and in proximity to the Genito Road/Old Hundred Road intersection. Included among these uses are: small retail and convenience stores; contractors offices, shops and storage yards; motor vehicle repair; motor vehicle service stations; personal services and professional offices; fast food

restaurants; a hotel; mini-storage and office-warehouses; a commercial outdoor recreational establishment, among other uses. About half of these uses (by acreage) have developed since 1994.

The demand for additional freestanding commercial space is determined in part by the type of use occupying the site. Some freestanding uses, such as department and discount stores, have market areas similar to community scale shopping centers. Other uses, such as home centers and motor vehicle sales, draw from larger areas, to include countywide and even regional markets. Still other uses, such as convenience stores, fast food restaurants and automobile service stations, depend in large part on traffic generated by other uses, such as nearby shopping centers and employment centers, and on commuter traffic passing through the study area.

The location of any new freestanding commercial space would also be influenced by: the availability of suitably zoned land; parcel size, configuration, access and visibility; and environmental constraints such as floodplains and wetlands.

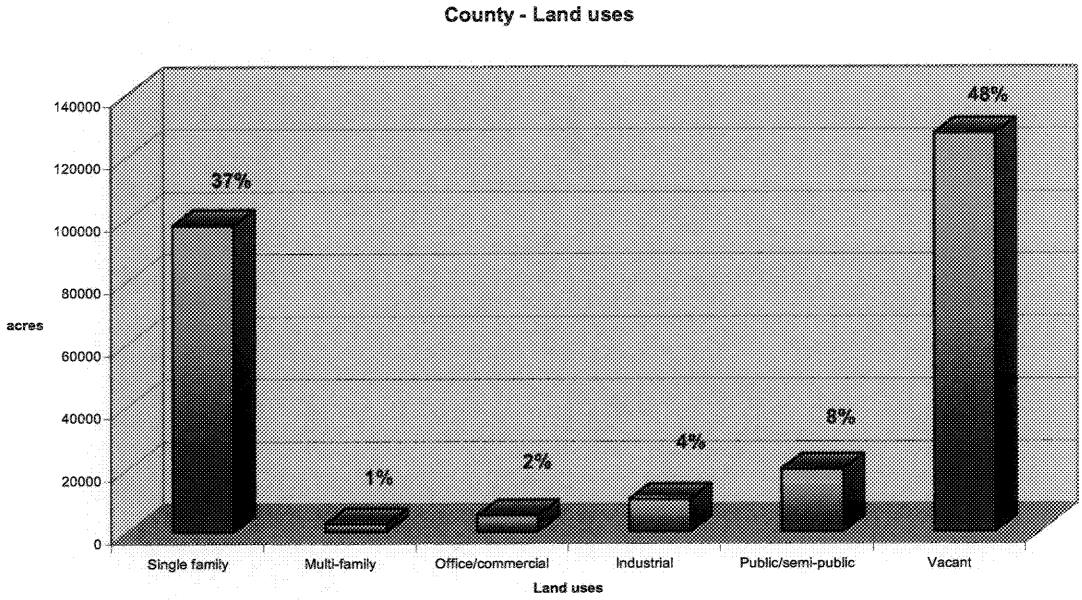
3. Hotel/Motel

At present, there is one hotel/motel within the study area, located at the intersection of Rt. 360 and Old Hundred Road. A site for another is currently under review, located further west along Rt. 360 in the vicinity of Woodlake. Recent hotel/motel development activity within the study area and along Rt. 360 at or near the intersection of Rt. 360 and Courthouse Road (east of the study area), suggests there may be a potential demand for additional hotel/motels in this portion of the county.

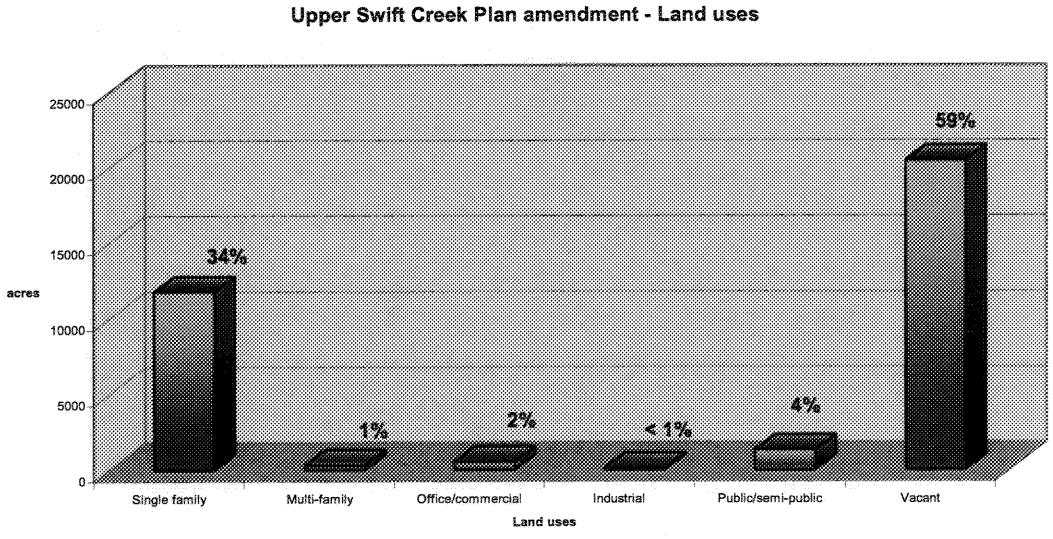
4. Industrial Development

Most industrial zoning and land uses within the study area are located around the Powhite/Rt. 288 interchange and the intersection of Genito and Old Hundred Roads.

Land use – Countywide (12/31/06)



Land use – Upper Swift Creek Plan amendment geography (12/31/06)



Supporting Document C

(October 2005)

Upper Swift Creek Plan Amendment: Transportation Options

Maintenance and construction of Chesterfield County's road system is the responsibility of the Commonwealth of Virginia. Funding from the Virginia Department of Transportation (VDOT) has been inadequate to address existing needs, and the prospects for additional state funding are uncertain at best. Alternate funding sources continue to be investigated to address the shortfall between road needs and available funding. Several options have been considered for supplementing the state road funding. The following options are available to supplement state and local funding but would not be sufficient to address all of the county's needs. Options include, but are not limited to:

- **Transportation Service District in the *Upper Swift Creek Plan* Area:** This would provide for an additional tax levy against real property in the service area. An assessment rate between $0.10 and $0.15 per $100 of assessed value would be required to finance $90 to $120 million in road improvements.

It is estimated that this would equate to an additional $200 to $300 per year on the median tax bill of the single family property owner based on the January 2005 assessments, and greater impact for commercial and multi-family property owners.

The amount of additional taxes is subject to many variables: changes in assessed values, amount financed, frequency of debt issues and overall debt repayment requirements.

- **Use of Cash Proffers for Road Debt Service:** The 2004 General Assembly established local authority to use cash proffer revenues for the repayment of bonds. Discussions with rating agencies indicate unfavorable bond ratings on cash proffer backed debt due to the uncertain long-term reliance on this revenue stream.

- **General Obligation Bonds for Roads:** Voters overwhelmingly approved the issuance of $40 million in general obligation bonds for roads in the 2004 referendum. One of the bond projects was in the plan area -- the widening of Hull Street Road between Swift Creek and Winterpock. Bonds are repaid from locally generated revenues.

Additional referenda on general obligation bonds could be used in the future to fund road improvement projects. However, the county's available debt has been allocated through 2011, and there is no capacity to issue additional debt until that time.

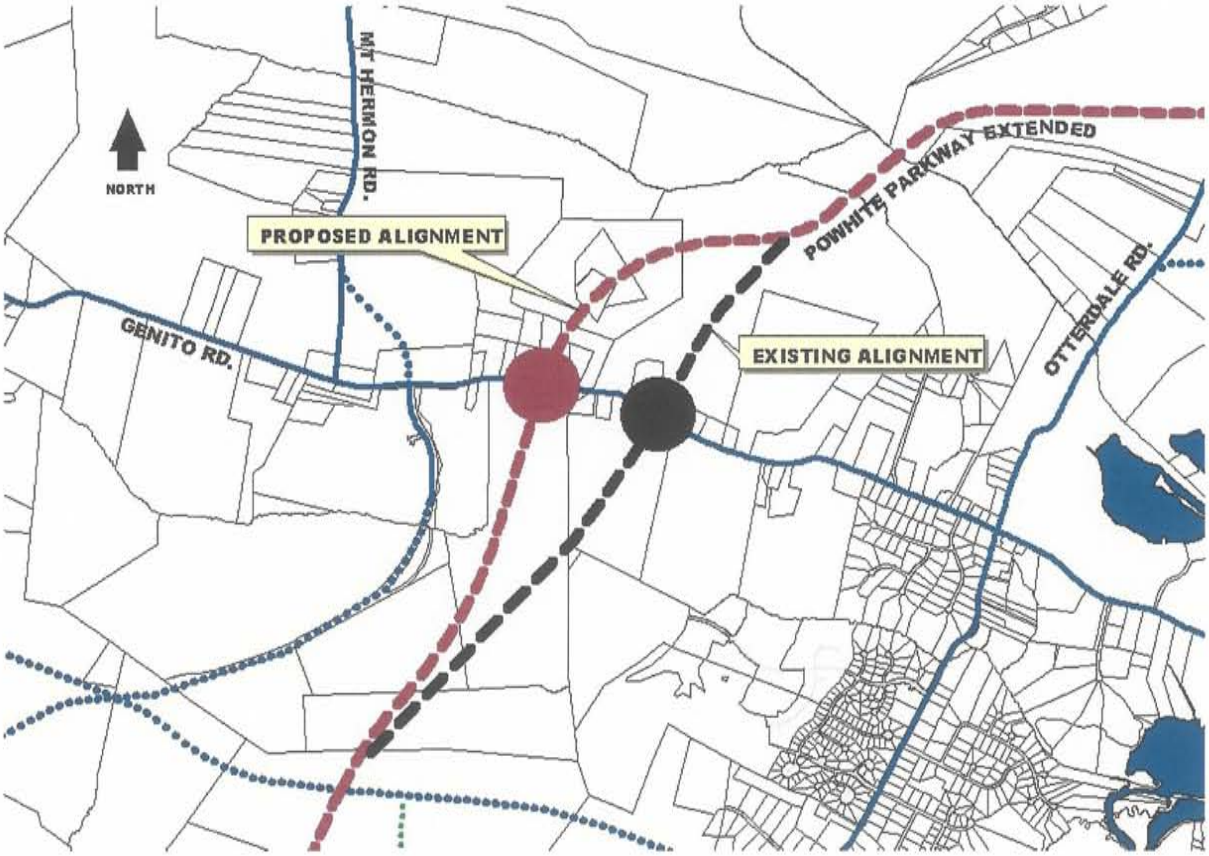
- **Reprioritization of Local Capital Improvement Funding Sources for Road Projects:** The Board of Supervisors annually adopts a Capital Improvement Program (CIP) allocating funding sources to many competing

needs such as schools, public safety, human services and general county improvements. Road funding has been primarily considered a state responsibility, and has not kept pace with current needs. A reprioritization in the CIP of available resources could shift funding from these noted areas to road projects, in essence supplementing state funding.

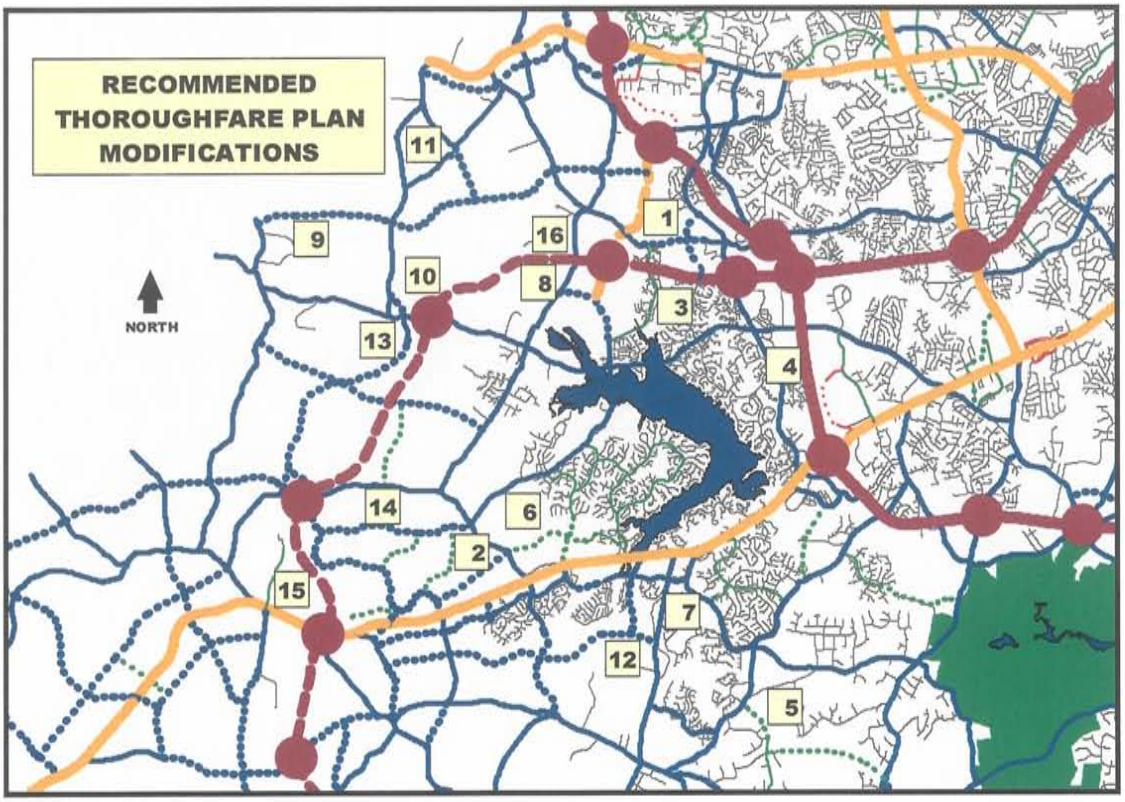
- **Cash Proffers:** In conjunction with residential development, the county has accepted cash proffers for capital improvements since 1990. Since then, approximately $12.1 million has been collected for roads countywide. Cash Proffer funds for road improvements must be spent in the area of the county where they are generated. Since 1990, $2.3 million has been raised for road improvements in the area of the county encompassing the *Upper Swift Creek Plan* area. Approximately $1.2 million of those funds have been spent fixing roads in that area of the county.

- **Powhite Parkway Extension as a Toll Road**: The Public-Private Transportation Act (PPTA) of 1995 allows private companies to propose building public roads. Two private-sector proposals were submitted to VDOT under the PPTA, for the extension of the Powhite Parkway from its current terminus at Old Hundred Road to Hull Street Road. Both proposals would complete this section of the Powhite Parkway Extension as a Toll Road. Both proposals were returned to the applicants by VDOT.

Realignment of Powhite Parkway Extended at Genito Road



Recommended Thoroughfare Plan Modifications



Chesterfield County, Virginia

Memorandum

DATE: JULY 3, 2007

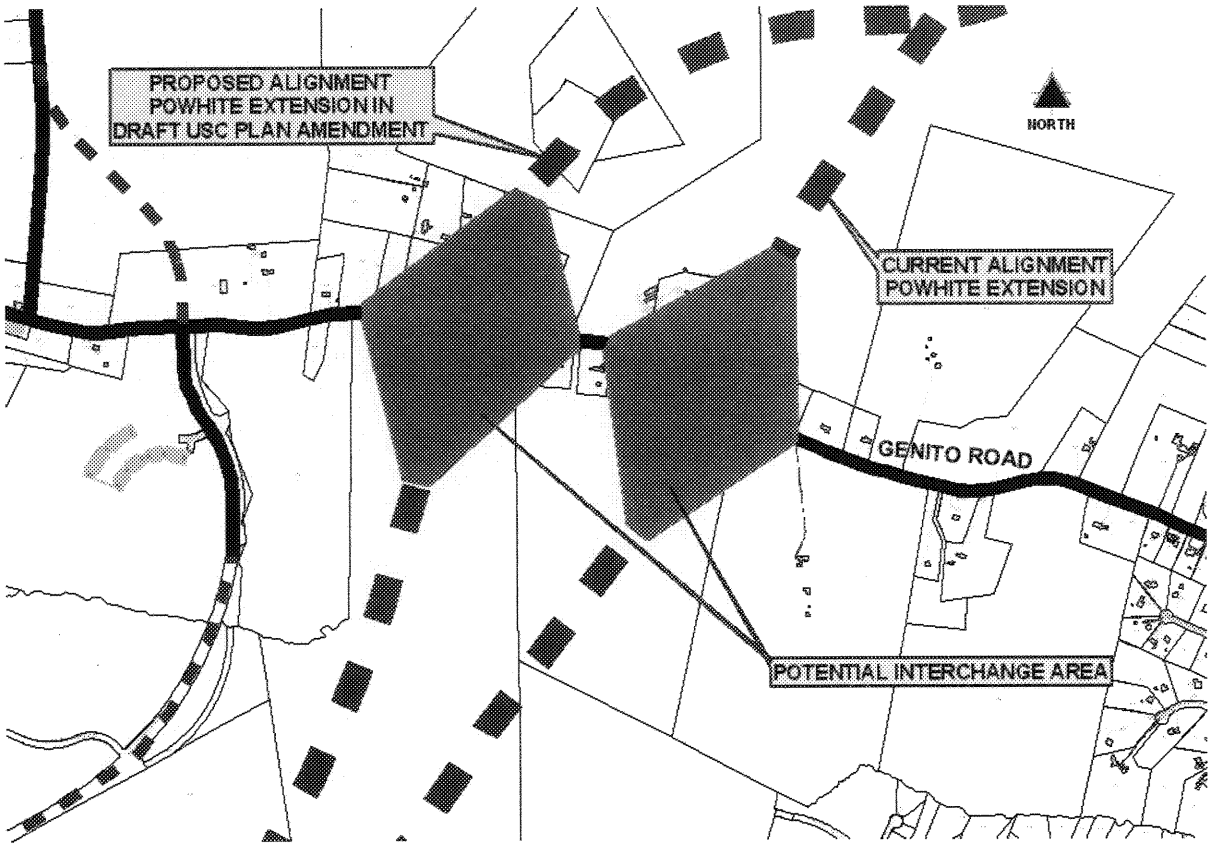
TO: CHESTERFIELD COUNTY PLANNING COMMISSION

FROM: STEVE SIMONSON, CHESTERFIELD COUNTY TRANSPORTATION DEPARTMENT

SUBJECT: UPPER SWIFT CREEK PLAN AMENDMENT – ADDITIONAL MAP SHOWING THE REVISED ALIGNMENT OF THE POWHITE PARKWAY EXTENSION AT GENITO ROAD

Please find attached a map showing both the current and proposed alignments of the Powhite Parkway Extension where it crosses Genito Road. The map also shows a very approximate "potential interchange area". The interchange area is not based on any specific design work, but simply shows an area that has been utilized for similar interchange construction in other areas of the County.

It is our intention to add this map to "Supporting Document C" of the Upper Swift Creek Plan Amendment.


PROPOSED ALIGNMENT
POWHITE EXTENSION IN
DRAFT USC PLAN AMENDMENT
NORTH
CURRENT ALIGNMENT
POWHITE EXTENSION
GENITO ROAD
POTENTIAL INTERCHANGE AREA

Supporting Document D

TECHNICAL MEMORANDUM **CH2MHILL**

Upper Swift Creek Plan Total Phosphorus Loading Analysis for Planned Land Use Scenarios

PREPARED FOR: Chesterfield County

PREPARED BY: Tim Hare - CH2M HILL
Jamie Lynn Conner - CH2M HILL

COPIES: Dan Medina - CH2M HILL

DATE: August 15, 2005

Contents

Executive Summary

Annual total phosphorus (TP) loads were calculated for four scenarios, testing different housing densities for the future Upper_Swift Creek plan. In-lake phosphorus concentrations were predicted for each scenario. Load reductions to achieve the desired in-lake concentration of 0.05 milligrams per liter (mg/L) for total phosphorus were calculated for each scenario. The Planning Department's Preferred Alternative, Scenario B (2 dwelling units per acre) can be met using the 1999 management plan's best management practice (BMP) mix.

Introduction

In 1999, CH2M HILL and Timmons Group working with the County of Chesterfield, Virginia, developed the Watershed Management Master Plan and Maintenance Program for the Swift Creek Reservoir Watershed (Management Plan). The Management Plan was developed in response to citizen and County staff concerns that future development in the Swift Creek Reservoir watershed would lead to eutrophication and degraded water quality in the reservoir.

The Swift Creek Reservoir serves both as a drinking water supply and a recreational destination. Part of the Management Plan entailed using the P8 Urban Catchment Model

(Walker, 1990; Walker, 2000) to determine the annual TP loads and flows from the reservoir's 10 tributary watersheds and from the areas that contributed direct runoff. The results of the P8 modeling effort were in turn used as input for a predictive model developed by K. H. Reckhow (Reckhow, 1989). The Reckhow Model was used to predict the mean TP concentration in the reservoir during the summer.

In 2004, CH2M HILL was contracted to update the P8 tributary models and the Reckhow Model based on current land use. In 2005, CH2M HILL and Timmons Group were tasked with evaluating four different land use scenarios in support of a revised Upper Swift Creek Plan. This technical memorandum (TM) discusses the steps to collect the required data, and evaluate the scenarios using the P8 and Reckhow models. The TM compares the results with those developed in 1999.

Land Use Scenario Formulation and Data Development

Land Use Scenario Formulation

The existing land use from 2004 was adopted as the base land use. Since the 2004 land use was based on tax records and current use, it provides an accurate portrait of the watershed. The County desired to model the impacts of four different scenarios on water quality. As was the case in 1999, each scenario's projected planned land use was based on the conversion of vacant land to another land use, typically residential. It was assumed that the planned land use for Powhatan County in the upper portion of the watershed would be the same as 1999. Each scenario would look at the following different residential densities:

- Scenario A – 2.2 dwelling units per acre (du/ac).
- Scenario B – 2 du/ac.
- Scenario C – 1.5 du/ac.
- Scenario D – 1.0 du/ac.

Scenario A uses the housing density from the 1999 study instead of the 2.0 du/ac adopted in 2000 in order to maintain continuity with the 1999 results. All four scenarios have identical non-residential land use.

Conversion of vacant parcels was guided by the geographic information system version of the County's development potential database. Two fields in this database were used to determine whether an individual parcel was to be converted. The first was the field LND_USE_03, which indicates the actual land use for a given parcel in 2003. All parcels with VACANT in the LND_USE_03 field were identified as candidates for conversion. The second key field was ZONE_03, the existing zoning for the parcel. Vacant parcels zoned "A" indicate parcels that are subject to future development, but no such development had been officially identified for the parcel.

The next step for the vacant Zone A parcels was to check the development potential database to determine whether the parcel was projected for residential or commercial development. If it was projected for commercial development, then the parcel was identified as commercial/light industrial (CLI). If the parcel was projected for residential development, then it was assigned the appropriate land use code based on the scenario's residential densities.

Vacant parcels that are zoned for any nonresidential category were projected to the corresponding land use. Residential land use was assigned to vacant parcels zoned for residential based on parcel size and the approved number of units.

Certain parcels in the database were designated by the Planning Department as Deferred Growth Area parcels. The Deferred Growth Area parcels all have a maximum housing density of 0.2 du/ac and are all greater than 4.5 acres. These parcels are located in 6 of the 11 contributing watersheds including:

- Blackman Creek
- Horsepen Creek/ Deep Creek
- Otterdale Creek
- Swift Creek
- Turkey Creek
- The direct runoff component, which corresponds to runoff directly reaching the reservoir

Methodology for Impervious Fraction Calculations

One of P8's input parameters is the impervious fraction for each subwatershed. Impervious fractions were assigned to most land use categories based on the 1999 and 2004 modeling efforts. Impervious fractions for the converted residential areas were assigned based on the values in Table 1.

TABLE 1
Impervious Fraction Revisions
Upper Swift Creek Plan Modeling Support

Scenario	Residential Density (du / ac)	Impervious Fraction
A	2.2 – 4.0	0.35
B	2.0	0.34
C	1.5	0.31
D	1.0	0.15
B, C, D Deferred Growth Areas	0.2	0.05

Additionally, the new land use (CLI) was assigned an impervious fraction of 0.90. Using the revised impervious fraction information, the impervious fractions were calculated for each subwatershed.

Watershed Modeling

P8 Modeling

The 11 P8 models (10 tributary and 1 direct runoff to the lake) developed for the 2004 existing land use were modified to reflect changes in land use according to each scenario. The only change to each model was an adjustment of the impervious fraction for each subwatershed to account for land use changes. The remaining data, including precipitation and temperature, were identical to those used in the previous modeling efforts in 1999 and 2004.

Table 2 compares the land use scenarios among the three modeling efforts (1999, 2004, and current). Included in the table is a description of each scenario's development.

TABLE 2
Scenario Summary
Upper Swift Creek Reservoir Watershed Management Plan

Modeling Scenario	Description
1999 Existing Land Use	Existing land use at the time of the original study.
2004 Existing Land Use	Land use updated to 2004 including existing BMPs.
1999 Projected Planned Land Use	Planned land use projected by the original study. Based on converting vacant land to 2.2 du/ac
2005 Scenario A Projected Planned Land Use	Planned land use projected by converting vacant land from 2004 Existing Land Use to 2.2 du/ac. Maintains continuity with 1999 study.
2005 Scenario B Projected Planned Land Use	Planned land use projected by converting vacant land from 2004 Existing Land Use to 2 du/ac, additional conversion of 4,079 acres to RR (Deferred Growth Areas).
2005 Scenario C Projected Planned Land Use	Planned land use projected by converting vacant land from 2004 Existing Land Use to 1.5 du/ac, additional conversion of 4,079 acres to RR.(Deferred Growth Areas)
2005 Scenario D Projected Planned Land Use	Planned land use projected by converting vacant land from 2004 Existing Land Use to 1 du/ac, additional conversion of 4,079 acres to RR.(Deferred Growth Areas)

Notes:
RR = rural residential

Table 3 summarizes the previous modeling efforts, breaking down by tributary watershed the TP annual loads calculated for the 1999 Existing Land Use, 2004 Existing Land Use, and the 1999 Projected Planned Land Use scenarios.

TABLE 3
Summary of Previously Modeled Total Phosphorus Annual Loads
Upper Swift Creek Reservoir Watershed Management Plan

Watershed	1999 Existing Land Use	2004 Existing Land Use	1999 Projected Planned Land Use
TP Annual Load (lb/yr)	12,189	14,547	43,508

The results of the tributary model runs for Scenarios A through D are summarized in Table 4. The total TP annual load for Scenario A is significantly greater than any of the other scenarios. The overall TP annual loads from Scenarios B and C are similar to each other and to the 1999 projected planned land use. Scenario D is 11 percent lower than the 1999 results. The annual loads by tributary watershed are shown in Figure 1.
It is clear that several watersheds are projected to experience denser development than what was anticipated in 1999. This effect can be seen where the annual load for Scenario A exceeds the annual load for the 1999 projected planned land use by 10 percent. This is the case with Turkey Creek, Otterdale Creek, Horsepen Creek/ Deep Creek, and the direct runoff component. The total annual flows generated by each scenario are similar.

All four scenarios and the 1999 planned land use total flows fall within 3 percent of each other.

TABLE 4
Summary of Total Phosphorus Annual Loads and Flows by Scenario with Deferred Growth Areas
Upper Swift Creek Reservoir Watershed Management Plan

	Scenario A Projected Planned Land Use	Scenario B Projected Planned Land Use	Scenario C Projected Planned Land Use	Scenario D Projected Planned Land Use	1999 Projected Planned Land Use
Total TP Annual Load (lb/yr)	47,674	42,784	42,181	38,926	43,508
Total Annual Flows (ac-ft)	100,923	99,376	99,186	98,214	100,392

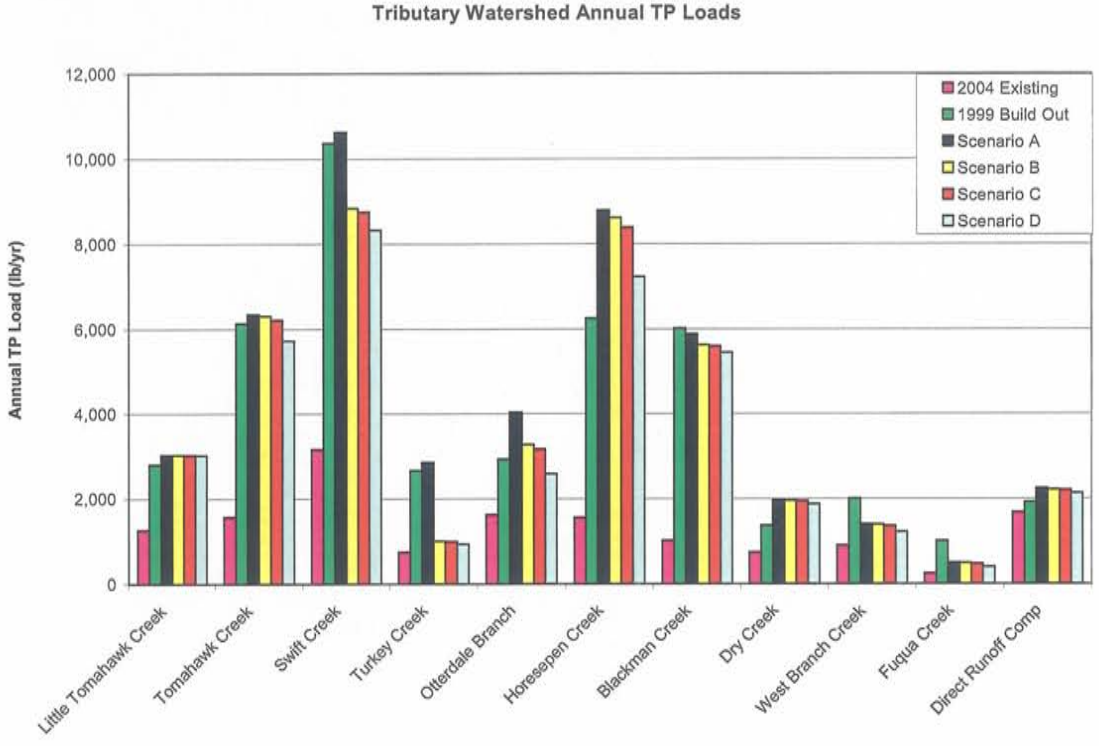
Reckhow Modeling

As in the two previous modeling efforts, the impact of the TP loads on Swift Creek Reservoir were projected by using one of Reckhow's empirical relationships for Southeastern U.S. reservoirs:

$$P = \frac{P_{in}}{1 + 3P_{in}^{0.53} T^{0.25} Z^{0.58}}$$

where:
P is the median summer in-lake TP concentration (mg/L)
P_{in} is the mean annual influent TP concentration (mg/L)
T is the hydraulic detention time (yr)
Z is the mean depth of the lake (m)

FIGURE 1
Summary of Total Phosphorous Annual Loads by Scenario
Upper Swift Creek Reservoir Watershed Management Plan

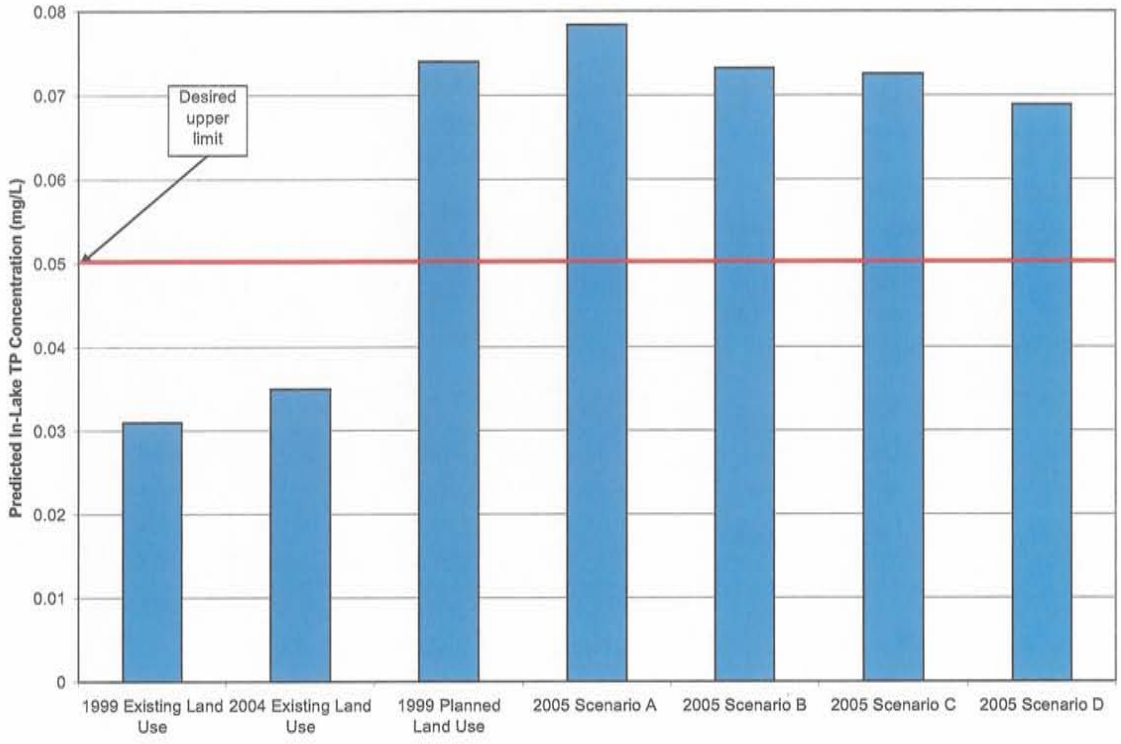


P_{in} was calculated by converting the TP annual load to kilograms per year (kg/yr) and dividing by the total annual flow converted to cubic meters per year (m^3/yr). The hydraulic detention time T, was calculated by dividing the reservoir volume by the annual flow in m^3/yr. Both the reservoir volume and average depth were assumed to be the same as those used in the Management Plan. Reckhow Model results are displayed in Figure 2 and summarized in Appendix A.

All of the future scenarios are above the desired 0.05 mg/L limit for TP. In-lake concentrations greater than 0.05 mg/L are considered to be eutrophic, causing severe

water quality degradation in the reservoir. Scenario A results in a higher in-lake TP concentration than the 1999 planned land use. Scenarios B and C are similar to the 1999 results. Scenario D is slightly lower than the 1999 results.

FIGURE 2
Summary of Predicted In-Lake TP Concentrations by Scenario
Upper Swift Creek Reservoir Watershed Management Plan



Conclusions

The results of each planned land use scenario point to exceeding the TP limit for in-lake concentrations. The next step was to determine the maximum level of annual loading that will result in an in-lake TP concentration of 0.05 mg/L or less. The results of this calculation are in Table 5.

As shown in Table 5, the annual loads required to achieve the in-lake goal vary approximately between 25,000 and 26,000 pounds per year. This variation is due to the relatively similar loads and flows among all scenarios as well as the constant volume and average depth of the reservoir. The last column in the table shows the reduction in the TP load that is needed to achieve the maximum level of 0.05 mg/L. The analysis indicates that significant reductions are needed.

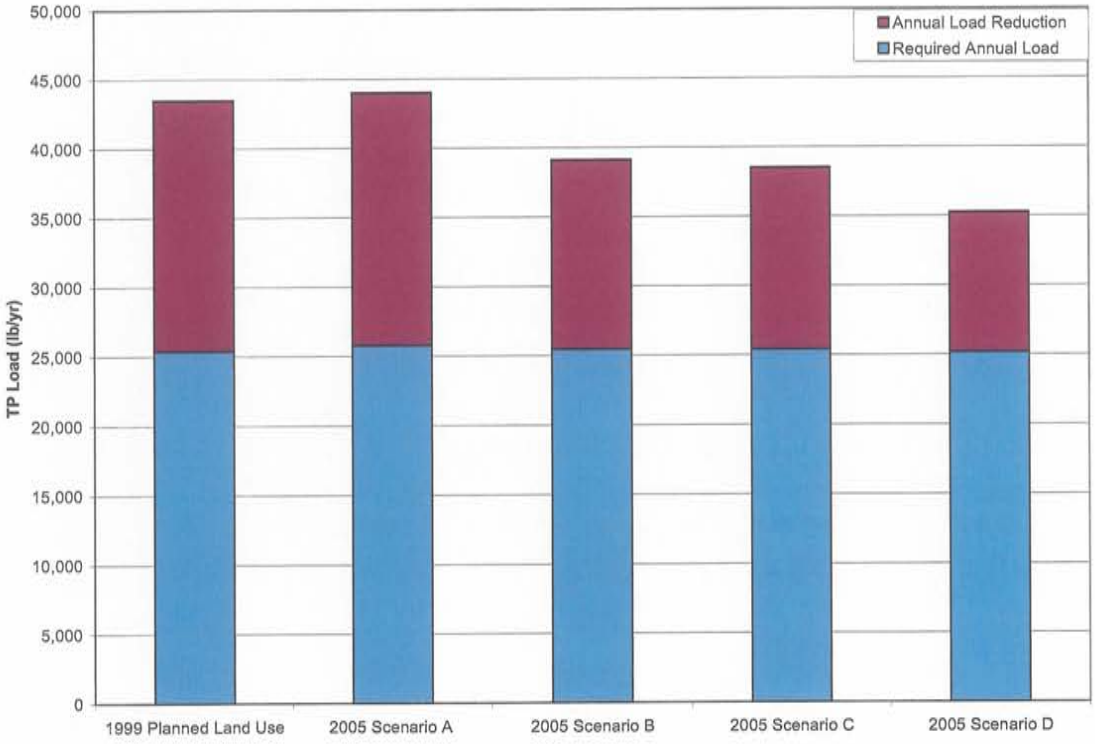
Based on discussions with Planning Department staff, the likely scenario to be recommended for the new land use plan is Scenario B, which is projected to have an annual load of 42,784 pounds per year TP at the planned land use. The modeling results predict that this load will require a reduction of approximately 17,000 pounds of TP per year in order to achieve the in-lake goal. This reduction requirement is 6 percent less than the reduction based on the 1999 planned land use projection (Figure 3).

TABLE 5
Load and Reductions Required to Meet Reservoir Total Phosphorous Limit (0.05 mg/L)
Upper Swift Creek Reservoir Watershed Management Plan

Modeling Scenario	Annual TP Load (lb/yr)	Annual TP Load Required to Achieve 0.05 mg/L (lb/yr)	Reduction Required to Annual Load (lb/yr)
1999 Existing Land Use	12,189	N/A	N/A
2004 Existing Land Use	14,547	N/A	N/A
1999 Planned Land Use	43,508	25,402	18,106
2005 Scenario A Projected Planned Land Use	47,674	26,104	21,570
2005 Scenario B Projected Planned Land Use	42,784	25,767	17,017
2005 Scenario C Projected Planned Land Use	42,181	25,725	16,456
2005 Scenario D Projected Planned Land Use	38,926	25,513	13,413

The increase in impervious TP associated with the new land use CLI results in an increase in more than 4000 pounds of TP per year. As an extra precaution, the County may want to consider additional onsite BMPs for these areas. The onsite BMPs could remove the TP load from imperviousness greater than 55 percent at all future CLI sites.

FIGURE 3
Annual Loads and Required Reductions by Scenario
Upper Swift Creek Reservoir Watershed Management Plan



References

Reckhow, K.H. 1989. Water Resources Bulletin, Volume 24, No. 4, pp 723-734.

Walker, William D., Jr., PhD. 1990. P8 Urban Catchment Model Program Documentation, Version 1.1. May.

Walker, William D., Jr., PhD. 2000. P8 Urban Catchment Model Program, Version 2.4. February.

Appendix A

TABLE A-1
Summary of Previously Modeled Total Phosphorous Annual Loads, by Watershed
Upper Swift Creek Reservoir Watershed Management Plan

Watershed	1999 Existing Land Use (lb/yr)	2004 Existing Land Use (lb/yr)	1999 Projected Planned Land Use (lb/yr)
Little Tomahawk Creek	754	1,270	2,810
Tomahawk Creek	934	1,573	6,138
Swift Creek	3,542	3,163	10,376
Turkey Creek	751	750	2,665
Otterdale Creek	709	1,630	2,933
Horsepen Creek / Deep Creek	1,662	1,566	6,256
Blackman Creek	1,006	1,019	6,021
West Branch	580	742	1,371
Dry Creek	504	904	2,004
Fuqua Creek	415	248	1,010
Direct Runoff Component	1,333	1,682	1,924
Total	12,189	14,547	43,508

TABLE A-2
Summary of Previously Modeled Annual Flows, by Watershed
Upper Swift Creek Reservoir Watershed Management Plan

Watershed	1999 Existing Land Use (ac-ft / yr)	2004 Existing Land Use (ac-ft / yr)	1999 Projected Planned Land Use (ac-ft / yr)
Little Tomahawk Creek	5,415	5,621	6,442
Tomahawk Creek	8,047	8,196	9,873
Swift Creek	24,670	24,546	27,095
Turkey Creek	6,121	6,060	6,732
Otterdale Creek	5,362	5,560	5,963
Horsepen Creek / Deep Creek	7,996	8,021	9,849
Blackman Creek	8,246	8,166	9,522
West Branch	4,290	4,351	4,752
Dry Creek	4,372	4,548	4,975

TABLE A-2
Summary of Previously Modeled Annual Flows, by Watershed
Upper Swift Creek Reservoir Watershed Management Plan

Watershed	1999 Existing Land Use (ac-ft / yr)	2004 Existing Land Use (ac-ft / yr)	1999 Projected Planned Land Use (ac-ft / yr)
Fuqua Creek	3,571	3,567	3,840
Direct Runoff Component	10,805	11,576	11,347
Total	88,894	90,212	100,392

TABLE A-3
Summary of Total Phosphorous Annual Loads by Watershed
Upper Swift Creek Reservoir Watershed Management Plan

Watershed	Scenario A Projected Planned Land Use (lb/yr)	Scenario B Projected Planned Land Use (lb/yr)	Scenario C Projected Planned Land Use (lb/yr)	Scenario D Projected Planned Land Use (lb/yr)	1999 Projected Planned Land Use (lb/yr)
Little Tomahawk Creek	3,030	3,033	3,033	3,026	2,810
Tomahawk Creek	6,348	6,316	6,223	5,722	6,138
Swift Creek	10,632	8,840	8,760	8,334	10,376
Turkey Creek	2,855	1,003	996	938	2,665
Otterdale Creek	4,035	3,281	3,179	2,589	2,933
Horsepen Creek / Deep Creek	8,795	8,628	8,401	7,241	6,256
Blackman Creek	5,888	5,630	5,601	5,448	6,021
West Branch	1,959	1,958	1,947	1,873	1,371
Dry Creek	1,401	1,392	1,365	1,225	2,004
Fuqua Creek	491	489	475	400	1,010
Direct Runoff Component	2,240	2,213	2,201	2,131	1,924
Total	**47,674**	**42,784**	**42,181**	**38,926**	**43,508**

TABLE A-4
Reckhow Model Results
Upper Swift Creek Reservoir Watershed Management Plan

Modeling Scenario	Predicted In Lake TP Concentration (mg/L)
1999 Existing Land Use	0.031
2004 Existing Land Use	0.035
1999 Planned Land Use	0.074
Scenario A	0.078
Scenario B	0.073
Scenario C	0.073
Scenario D	0.069

Supporting Document E

Existing Conditions

Environmental Inventory

The Upper Swift Creek Plan is one three plans for the watershed area draining to the Swift Creek Reservoir. The Upper Swift Creek Watershed is rich with natural resources that if managed properly should provide for the water quality benefits needed for the preservation of the Swift Creek Reservoir. An environmental resource inventory (ERI) was performed as part of the *Watershed Management Master Plan* (2000). Many of the ERI features are continuality updated, to reflect additional data and changing field conditions. The ERI is a planning tool that includes information about and location of the physical and natural features that are determined important within the boundaries of the watershed. By using this tool to identify natural resources that help maintain water quality, the county can protect the tributaries and the Reservoir in an efficient, cost effective manner.

Swift Creek Reservoir Watershed Boundary:

The watershed covers 61.5 square miles or approximately 42,000 acres with portions of three magisterial districts overlaying its boundaries. Generally located west of Route 288 between Route 360 and Genito Road, 85% (35,000 acres) is contained within Chesterfield County with the remaining 15% in Powhatan County. The delineation of the watershed drainage boundaries is important because that boundary defines the portion of the County to be considered when establishing protection measures for source water (drinking water). The watershed can be divided into eight sub-watershed areas. By segmenting the delineation, management efforts may be targeted to those areas that are most vulnerable to water quality degradation and therefore are the highest priority to protect or restore. Moving downstream the, those stream segments that are closest to the Reservoir will have the greatest impact on its water quality, while those stream segments at the top of the watershed may have less of an impact on water quality (see Figure 1).

Hydrology (Tributary Streams):

The Swift Creek Reservoir Watershed is made of a network of eleven streams over 248 miles long that combine to form eight sub-watersheds, which flow directly into the Reservoir:

- Little Tomahawk Creek
- Tomahawk Creek
- Swift Creek/Turkey Creek
- Otterdale Creek
- Horsepen Creek/Blackman Creek/Deep Creek
- West Branch
- Dry Creek

• Fuqua Creek

The Swift Creek/Turkey Creek system drains the largest area (35 percent or approximately 14,700 acres) and the Fuque Creek drains the smallest area (4 percent or approximately 5880 acres) of the watershed. The networks of streams carry drainage from groundwater and storm flows. The physical and chemical degradation of these systems will result in increases pollutant loads, significantly affecting the water quality downstream. These effects of degradation can be further exacerbated if the stream systems become unstable and disconnected from floodplains and wetlands (see Figure 2).

Geologic Features:

The Upper Swift Creek Watershed is located in the Richmond coalfield, situated on a structural basin filled with Triassic-age sediments. This basin extends to parts of Goochland, Henrico, Amelia, and Powhatan Counties. The watershed contains the part of the Clover Hill Mining District as identified in the Virginia Division of Mineral Resources Publication 85 "Mining History of The Richmond Coalfield of Virginia." Mining operations in the watershed consisted of Coate's Pits and Hill Shaft, which were the northernmost workings in the District. Both operations were shut down by the mid 1800s. Another geologic feature of note is the existence of petrified wood formations found primarily in the Otterdale and Tomahawk Creek watersheds. The watershed also contains a large number of established spring fed ponds typically found in the upper reaches of sub-watersheds. Many streams in the watershed have been found to have their origin at or near groundwater springheads. While not unique to this watershed, these ponds and springs illustrate the importance that groundwater resources have played in the history of the area (See Figure 3).

Wetlands:

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soils conditions. These wetland resources are especially valuable for the protection and preservation of terrestrial and aquatic habitats and wildlife. In their natural conditions they provide flood control, water quality and maintain stream flow. Often these wetlands can be damaged by alterations to their associated streams. For example, down cutting, caused by increased storm flow volumes to a stream can lead to a draining or a drying of the wetland, reducing its quality and the overall water quality of the stream. Providing additional forested buffer for wetland resources will work to keep these systems intact, protecting the water quality of the Reservoir.

Wetlands account for approximately 5289 acres or 12 percent of the total acreage of the Swift Creek Reservoir Watershed. The greatest wetland acreage is concentrated at the lower stream reaches, near the head of the reservoir. Acreage decreases progressively upstream and is minimal at the headwaters. The greatest wetland acreage and diversity are associated with Swift Creek (approximately 853 acres or 16 percent) while the least

acreage and diversity is associated with Little Tomahawk Creek (approximately 146 acres or 3 percent). The Horsepen Creek/Blackman Creek/Deep Creek system accounts for approximately the second largest wetland acreage (approximately 519 acres or 10 percent) within the watershed (see Figure 4).

The dominant wetland type found is palustrine forested or bottomland hardwood forest. Bottomland hardwood forests are flat lowlands along streams or rivers usually on alluvial floodplains that are periodically flooded. They generally have a linear form as a consequence of their proximity to streams. Many of the stream systems in the watershed are associated with high quality wetlands. Swift Creek, Horsepen Creek and Blackman Creek contain a combination of large forest wetlands, high quality scrub-shrub and emergent wetlands.

Reservoir, Lakes & Ponds:

The Swift Creek Reservoir was constructed in 1966 and includes a 1,700-acre impoundment with 5.0 billion gallon capacity. Its mean depth when full is nine feet. The plant has a production capacity of 12 Mgal/Day. An additional 221 acres of impoundments (ponds and lakes) can be found throughout the Swift Creek Reservoir Watershed. These ponds were created as recreational or farm ponds facilities. As development occurs these facilities will have stormwater treatment potential.

Topography and Soils:

Soils have inherent characteristics that control their ability to retain or transmit water, and their stability. The Swift Creek Reservoir Watershed lies west of the Fall Line within the Central Piedmont Physiographic Province. The topography of the planning area consists principally of flatlands and gently rolling hills typical of this region. The *Soil Survey of Chesterfield County, Virginia* (U.S. Department of Agriculture-Soil Conservation Service [USDA-SCS], 1978) indicates the dominant soil association found within this area is Creedmor-Mayodan. This association is formed from material weathered from Triassic sandstone and shale compressed together (see Figure 5). The soils can be characterized as well drained clayey to gravelly clayey. They are low in organic-matter content, low in natural fertility, and can be strongly acidic. The soil survey also identifies eight hydric soil series within the watershed that are associated with floodplains, drainageways, and depressions and their runoff potential (see Figure 6). Knowledge of soil sciences is an important factor in determining the amount of erosion and stormwater runoff that could occur during development. This knowledge is also important for the application of available land management techniques and alternative stormwater treatments.

Flood Plains:

Flooding is a natural process that protects stream channels and beds form erosive forces during elevated storm flows. When inundated, the floodplain acts as a natural flood and erosion control, decreasing the magnitude of floods downstream. Decreasing the magnitude of flooding is beneficial for landowners in riparian areas and aquatic wildlife. In addition, the floodplain protects water quality by filtering runoff and promoting groundwater recharge. Finally, floodplain wetlands act as nutrient and sediment sinks, which also improves water quality in streams. This land area serves many functions and provides important habitats for wildlife (see Figure 7).

Stream Corridor Buffer:

In response to the Chesapeake Bay Preservation Act of 1988, Chesterfield County enacted the Chesapeake Bay Preservation Ordinance in 1990 (Ordinance). The ordinance protects environmentally sensitive features from improper development that would contribute to the significant degradation of the water quality of the County's waters, which drain into the Chesapeake Bay. Chesapeake Bay Preservation Areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs), which are subject to the criteria set forth in the Ordinance.

RPAs are environmentally sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts that may cause significant degradation to the quality of County waters. In their natural condition, these lands provide for the removal, reduction, or assimilation of sediments, nutrients, and pollution runoff entering the Chesapeake Bay and its tributaries. RMAs are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the RPA.

The RPA boundaries include 100-foot-wide buffers adjacent to and landward of the nontidal wetlands. The County has generally mapped RPA boundaries within the Swift Creek Reservoir Watershed according to hydric soil maps from the Soil Survey of Chesterfield County, Virginia. The RPA boundary extends 100-feet outward from the hydric soil boundary. In 2004, amendments to the Ordinance required site-specific determinations of perennial flow which thereby requiring buffers to be located along these stream segments. The County Resource Protection and Boundaries map identifies this buffer (see Figure 8). The area of RPA within the Swift Creek Reservoir Watershed, as of July 2006, was approximately 8.52 square miles or 5,454 acres. This includes 149,934 feet or 28.4 miles of perennial stream.

Rare, Threaten and Endangered Species:

Identification and protection of areas that contain rare, threaten and endangered species require special concerns. As described in the assessment conducted in 2000, Swift Creek Watershed has no federally endangered species known to exist within its bounds. Several species of plants are considered state-rare with one amphibian (Barking Tree Frog) considered state-threatened. The Bald Eagle was the only species considered both state and federal threatened.

Wildlife:

A vast array of wildlife to include deer, beavers, fox, hawks, eagles, ospreys, waterfowl, and heron rookeries are found along the Reservoir, wetlands, and forests throughout the watershed. A state birdwatching route cuts through the center of the watershed along Genito Road. The Reservoir has an abundant population of finfish, which includes the highest number of state citations for Chain Pickerel in 2005 Protecting contiguous forest and riparian corridors from development and encroachment is fundamental to maintaining a healthy wildlife population throughout the watershed.

Cultural Resources:

Background research to locate and identify documented cultural resources in the Swift Creek Reservoir Watershed was conducted by CH2M HILL in 2000. This information was used to develop historic contexts for evaluating the archaeological and architectural resources located in the watershed. Information on documented cultural resources was obtained from the Virginia Department of Historic Resources (VDHR) in Richmond, Virginia. Figure 9 shows the location of historic structures and documented archaeological sites in the watershed. Due to the rich natural resources of the area many of the historic structures located in this area can be found associated with these resources in the form of spring houses, mill runs, and earthen dams.

Figure 1

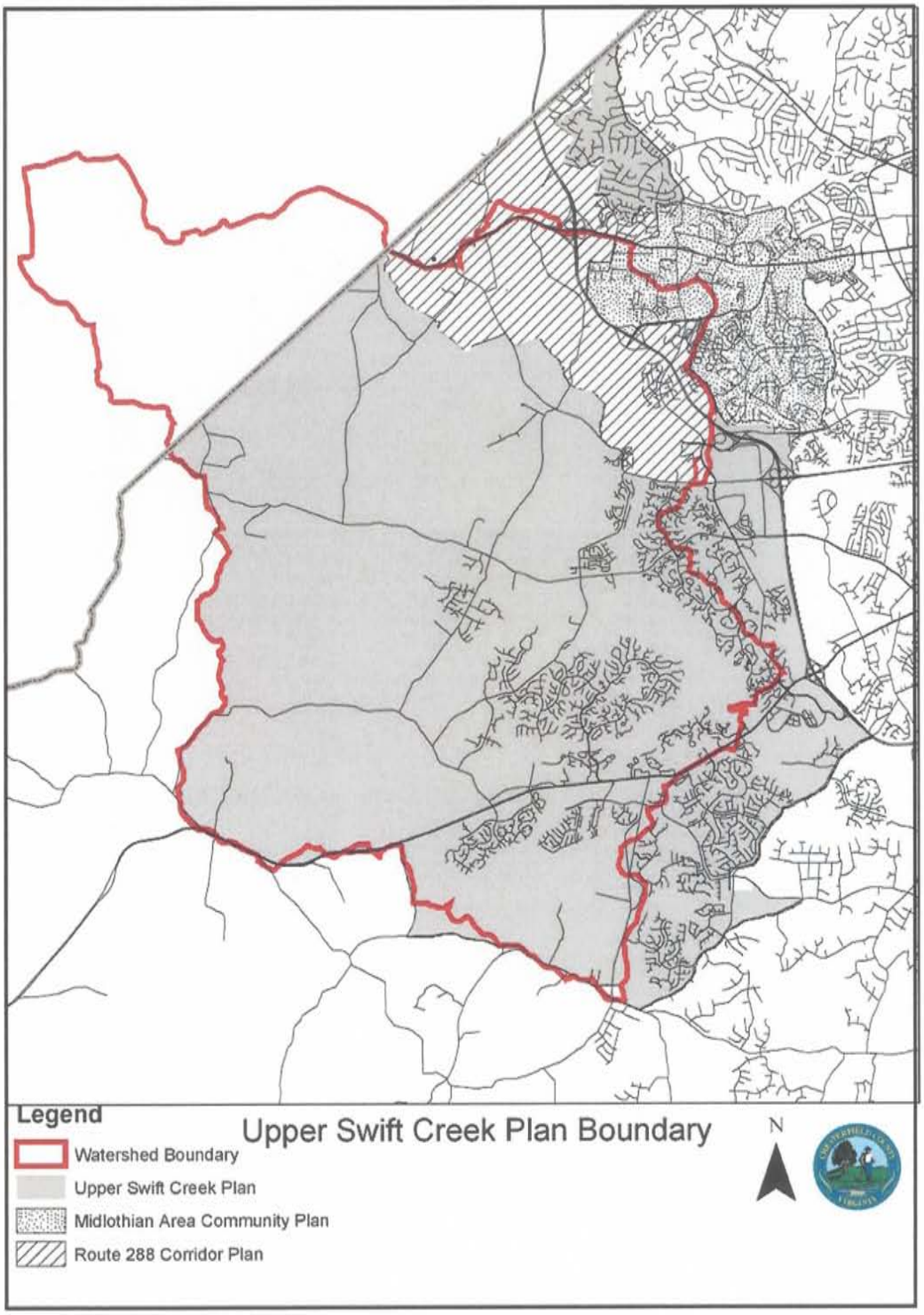


Figure 2

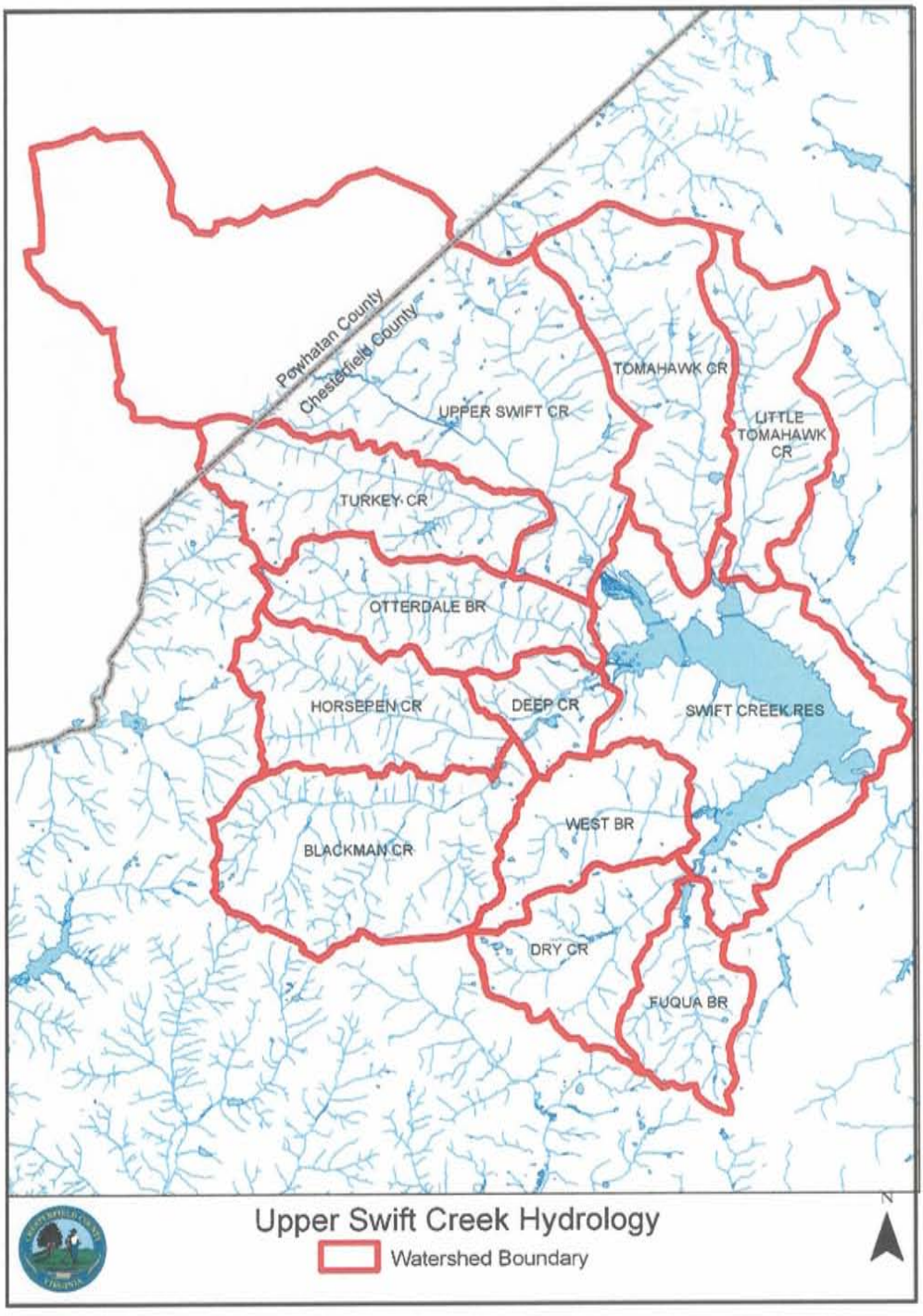
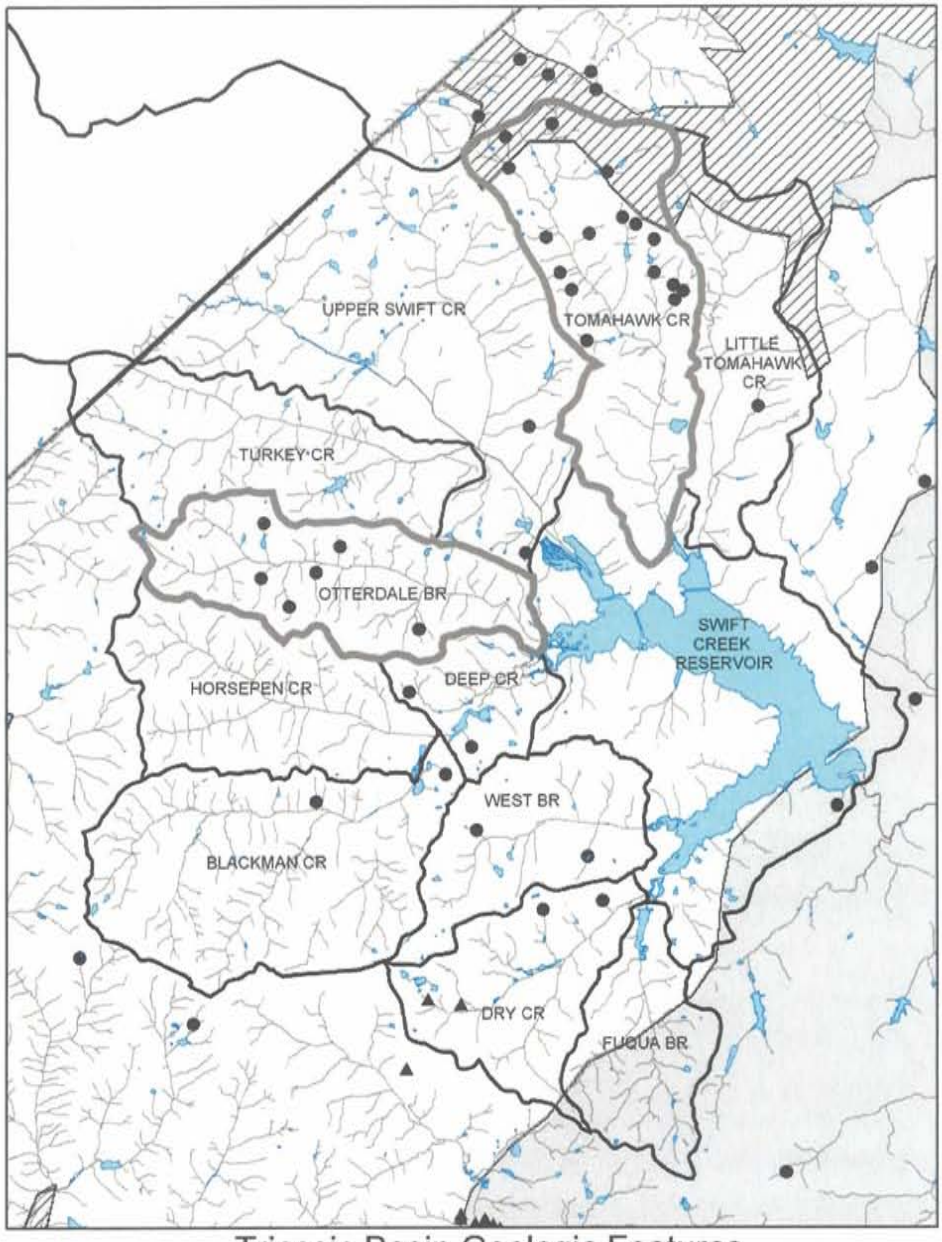


Figure 3



Triassic Basin Geologic Features

Legend

General Soil type
- Coastal
- Floodplain
- Piedmont
- Triassic

- Creeks With Petrified Wood
- Mining Activity
- Perenial Stream Source

N

000180

Figure 4

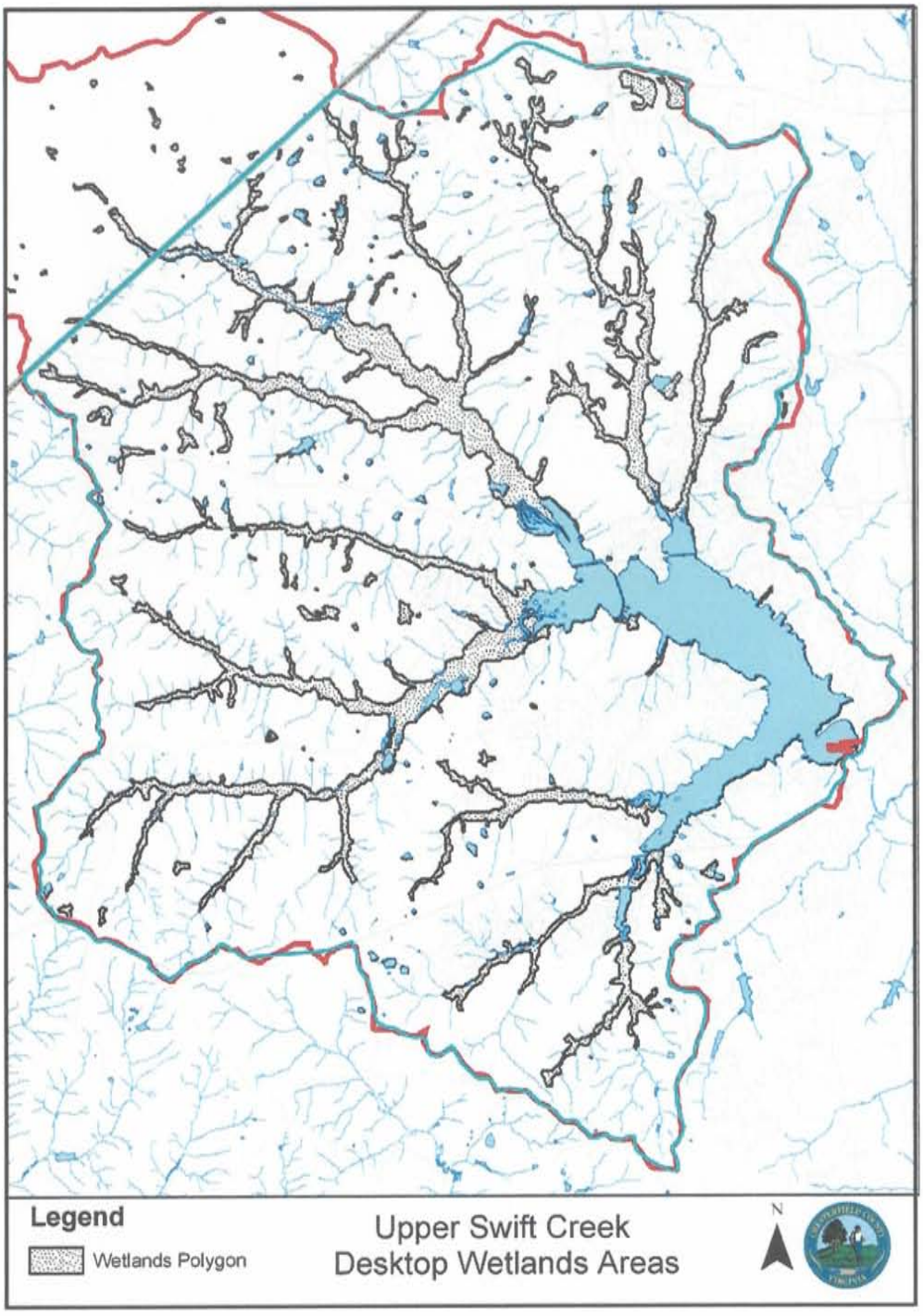


Figure 5

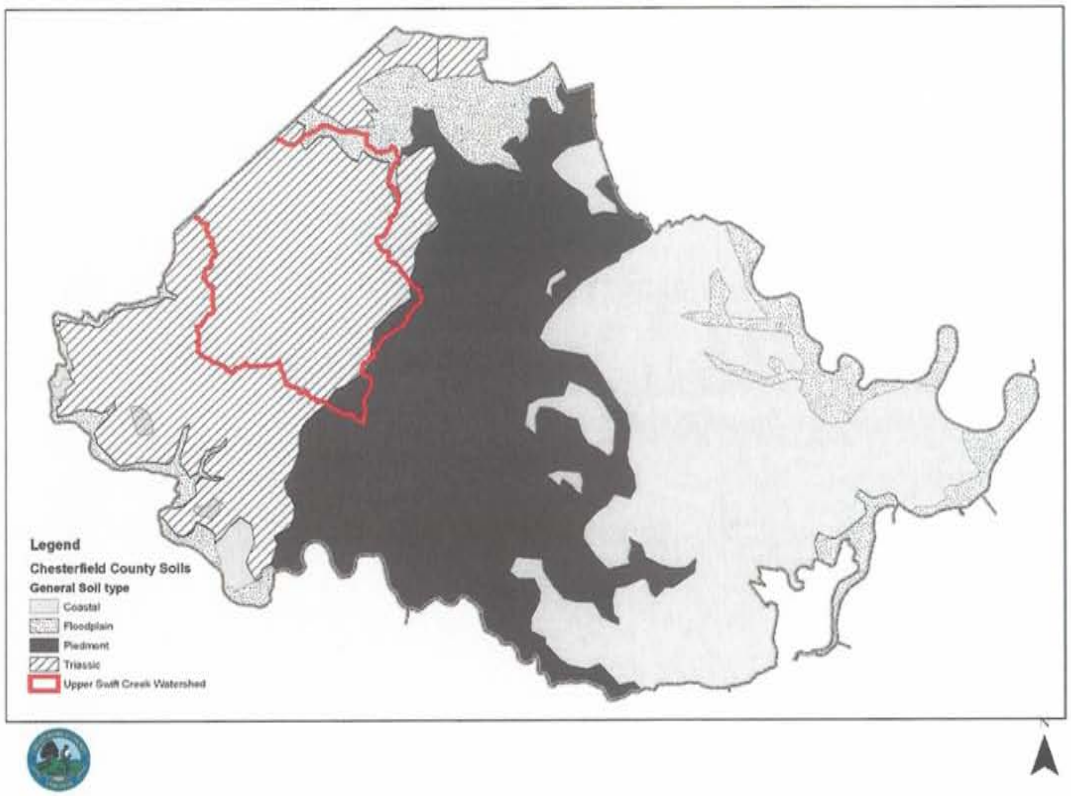


Figure 6

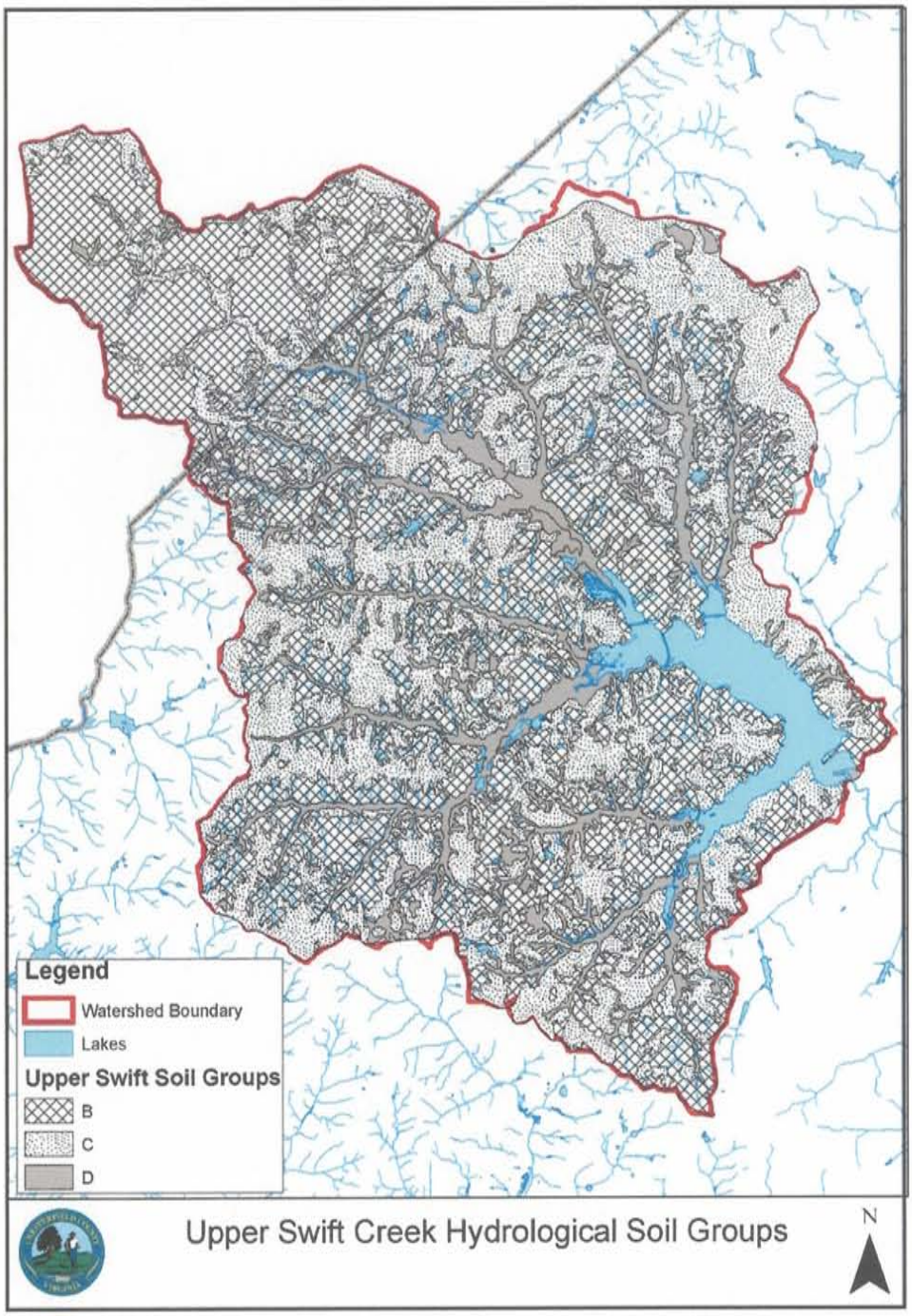


Figure 7

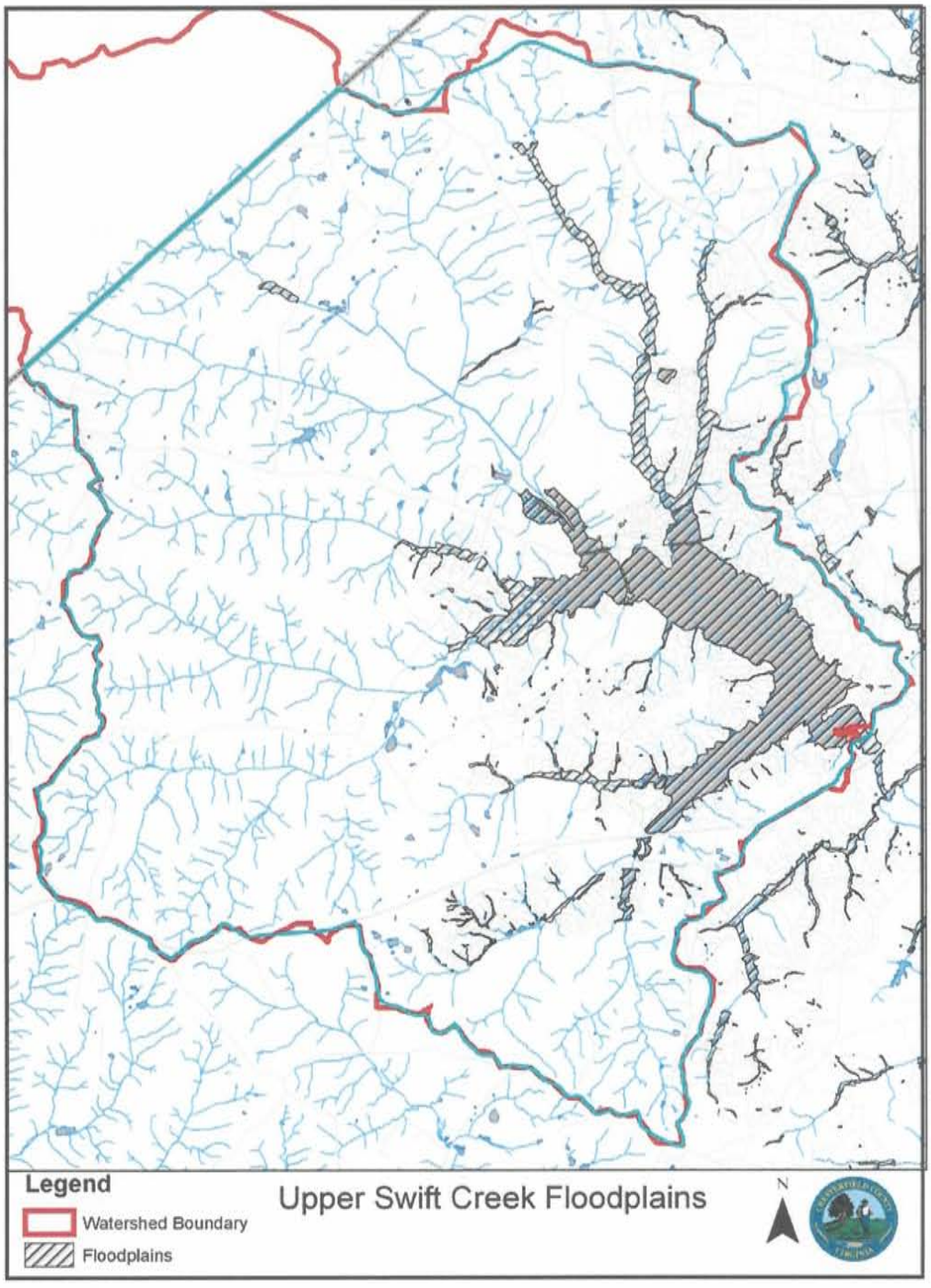


Figure 8

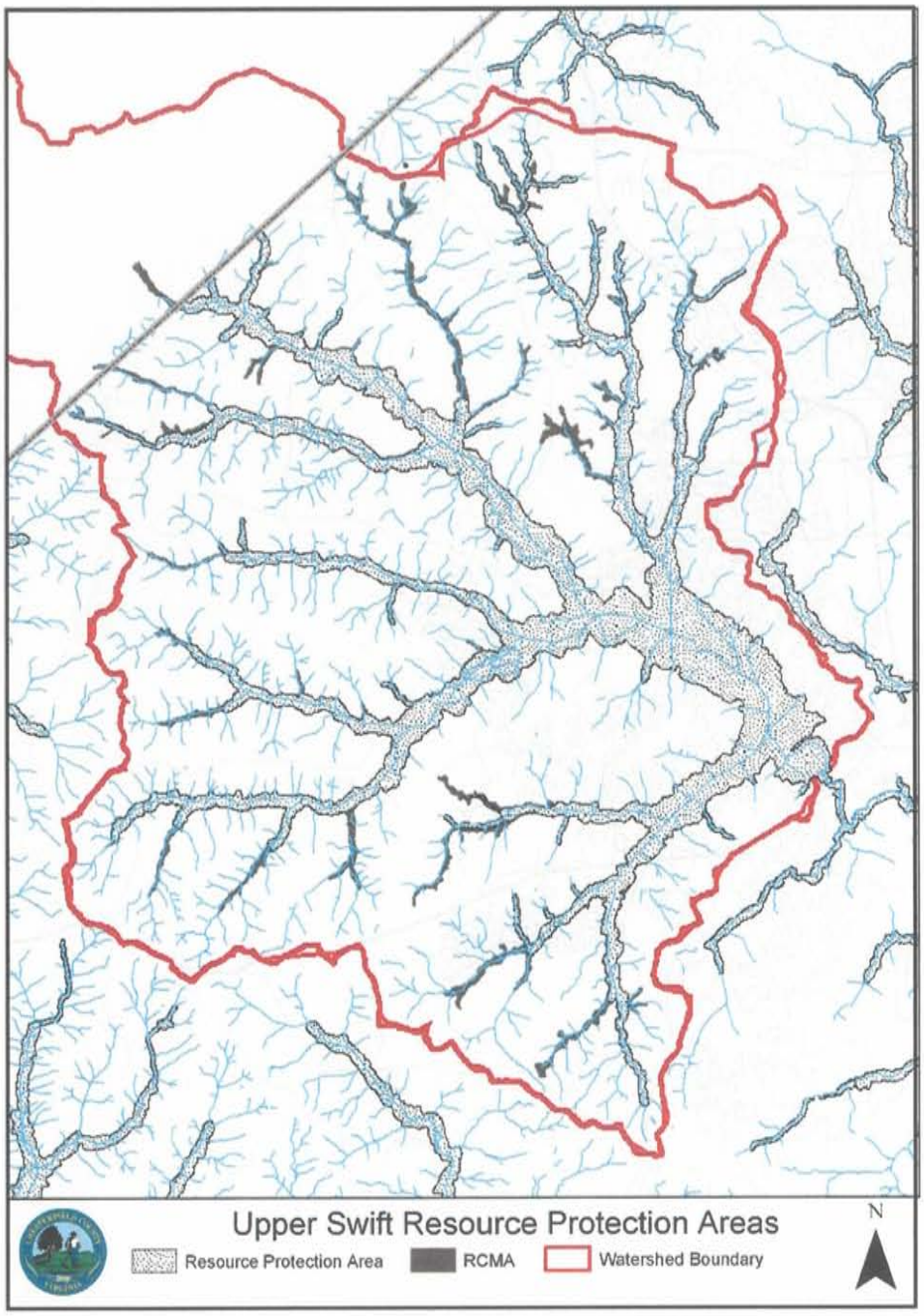
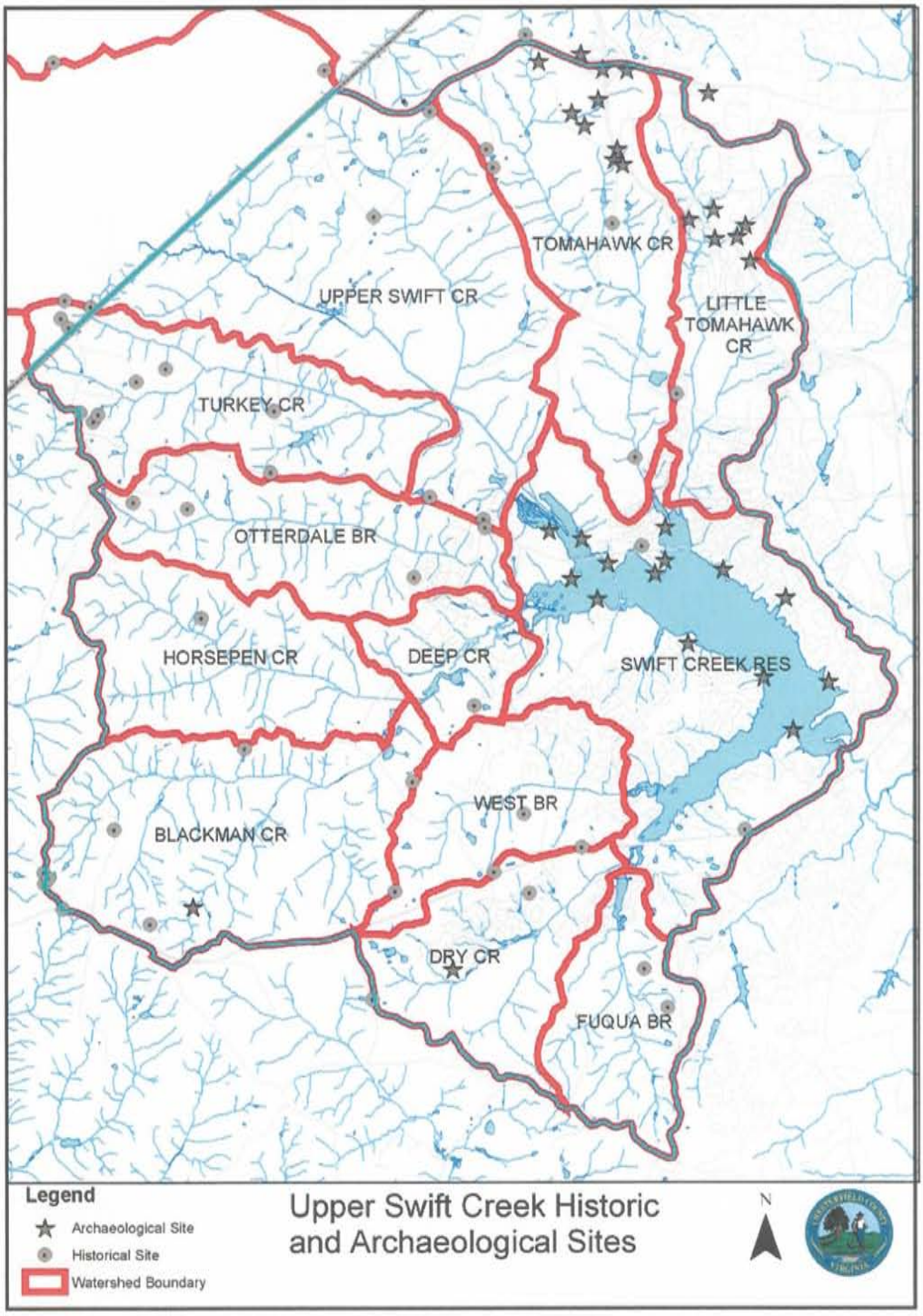


Figure 9



Supporting Document F

Assessment of the Biology, Habitat and Chemistry of Streams in the Upper Swift Creek Watershed, Chesterfield County, Virginia

Otterdale Creek near Clover Hill Athletic Park, Spring 2005

Chesterfield County
Office of Water Quality

Compiled June 2006

Table of Contents: Page

List of Maps, Tables and Figures:

Executive Summary

This report presents the physical, chemical and biological water quality data collected by Chesterfield County's Office of Water Quality over the period of 2002 to 2005 focusing on the streams of the Upper Swift Creek Watershed. Over the past four years, 10 sites have been monitored and assessed in the Upper Swift Creek Watershed. Most recent biological assessments indicate that the majority of the streams investigated in the Upper Swift Creek Watershed are "Slightly Impaired." Declines in biological condition have been observed at Turkey Creek (B-002 and B-012), Tomahawk Creek (B-030) and Little Tomahawk Creek (B-010 and B-036). Bioassessment scores have improved at the Tributary to Swift Creek (B-011) over the past three years.

Habitat assessments since 2002 have demonstrated that the majority of the streams investigated in the Upper Swift Creek Watershed possess either "Partially Supporting" or "Non-Supporting" habitat. The most heavily impacted stream is Little Tomahawk Creek. Improved habitat assessment scores have been observed at four sites since 2002 (B-011, B-028, B-034 and B-035).

A comprehensive suite of chemical parameters has been collected since 2002 to provide a general water quality "snapshot" at the time the biological and habitat assessments are obtained. 0 For the past four years, instream measurements of dissolved oxygen, conductivity, total dissolved solids and temperature have been normal. Observations of pH have shown several streams to have values less than 6.0 units. Fecal coliform densities observed in the tributaries of the Upper Swift Creek Watershed have largely been below the Virginia State one-time sampling standard of 400 MPN/100ml. Most recent data (2005) indicates elevated phosphorus and nitrogen concentrations at six sites in the Upper Swift Creek Watershed (table 6).

An index of water quality using the biological data, habitat assessment and select chemical parameters was used to provide for an overall evaluation of stream health in the County. In 2005, poor water quality was present at both the upper (B-010) and lower (B-036) portions of Little Tomahawk Creek. The best water quality has been consistently observed at the Otterdale Branch site for the past three years. In 2005, improvements were noted at the Tributary to Swift Creek (B-010) site.

Introduction:

This report presents the physical, chemical and biological water quality data collected by Chesterfield County's Office of Water Quality over the period of 2002 to 2005 focusing on the streams of the Upper Swift Creek Watershed. As a component of Chesterfield County's VPDES Permit VA0088609, Watershed Assessment and Stream Protection (WASP) Program, investigations are conducted each spring throughout the County to assess the condition of its waters. Since this watershed-based approach to sampling began in 2002, sixty-three stream segments have been assessed.

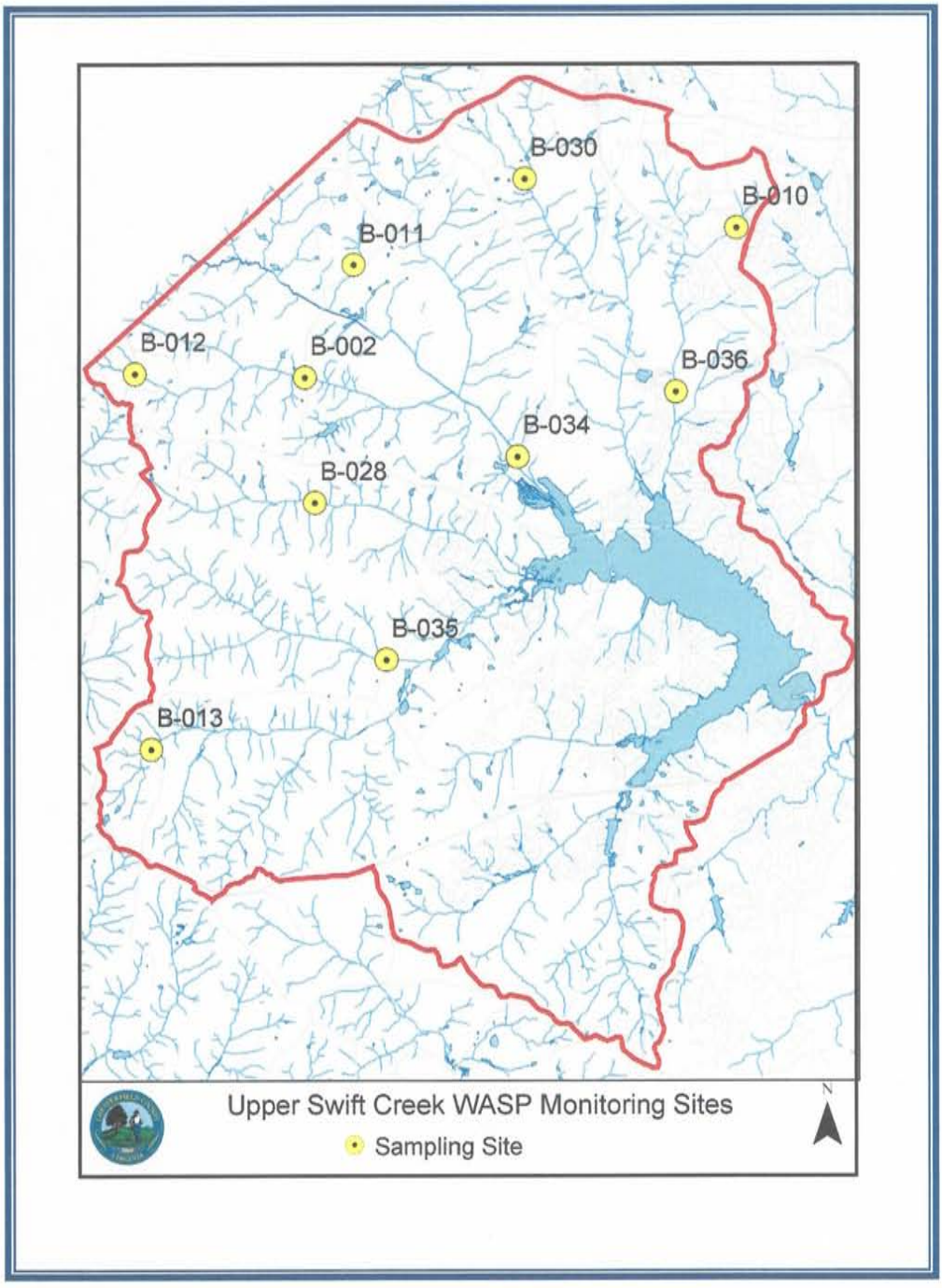
During this period, ten sites have been monitored and assessed in the Upper Swift Creek Watershed. Five of these sites have data for all four years while the others are represented by periods of one to three years. With the exception of sites B-035 and B-036, all streams in the Upper Swift Creek Watersheds have been used, in conjunction with streams in the Middle and Lower Swift Creek Watersheds, to compile a reference condition to which streams throughout the county can be compared.

These sites, as well as others in the program, were selected by a careful review of maps produced from the County's Geographic Information System. At each site, biological and habitat assessments followed the guidelines outlined in the Environmental Protection Agency's Revised Rapid Bioassessment Protocol (EPA, 1999). Physical and chemical water quality was determined by in stream measurements and laboratory analyses of collected samples. The aforementioned assessments and data have been used to produce an overall index of water quality for the streams of the watershed.

Table 1. Locations and years for which data is available for sites in the Upper Swift Creek Watershed

Site Number	Stream	Station Location	Years Monitored by OWQ
B-002	Turkey Creek	Upstream of Mount Hermon Road	2002 - 2004
B-010	Little Tomahawk Creek	Across from JTCC @Charter Colony Parkway	2002 - 2005
B-011	Tributary to Swift Creek	Downstream of Mount Hermon Road	2002 - 2005
B-012	Turkey Creek	Downstream of Mosley Road	2002 - 2003
B-013	Blackman Creek	End of Ledo Road	2002
B-028	Otterdale Branch	At Clover Hill Athletic Complex	2002 - 2005
B-030	Tomahawk Creek	Downstream of RR Crossing off Dry Bridge Road	2002 - 2005
B-034	Swift Creek	Downstream of Otterdale Road	2003 - 2005
B-035	Horsepen Creek	Upstream of Otterdale Road	2004 - 2005
B-036	Little Tomahawk Creek	At Old Hundred Road	2004 - 2005

Map 1. Location of WASP monitoring sites in the Upper Swift Creek Watershed



Results:

The following pages describe each site and contain a summary of the observations made at each stream. Photos depict the upstream view of the site unless otherwise noted. Left and right banks are referenced from the perspective looking upstream.

Site Number B-002

Stream: Turkey Creek

Site: Immediately Upstream of Mount Hermon Road

Watershed: Upper Swift Creek

Subwatershed: Turkey Creek

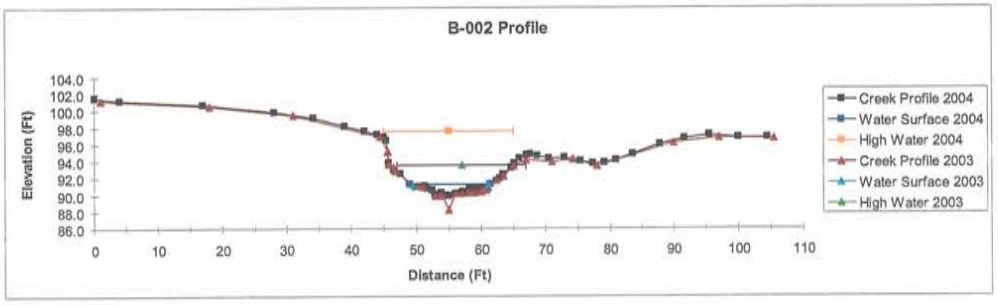
Approximate Drainage Area (acres): 1750

Stream Order: 2

Ecoregion: Triassic Basin (2)

Land Use: Mixed Forested, Low Density Residential and Agriculture

Stream Hydrologic Profile:



Bioassessment:

In 2004 the site was categorized as "Moderately Impaired", a downgrade from the "Slightly Impaired" status observed in 2003. Decreases in assessment categories have been observed since 2002. A substantial increase in the proportion of *Chironomidae* taxa present in the sample, as well as decreases in predators contributed to the lower score observed in 2004. Aside from midges, other taxa well represented in the sample included small minnow mayflies (*Baetidae*) and Scuds (*Cragonyx*).

Habitat Assessment:

The assessment for 2004 indicated the stream exhibited "Non-Supporting" habitat. Unstable banks with little vegetative cover, combined with a narrow riparian zone width on both sides were the main reasons for the observed

score. A slight decrease in pool variability was also noted. Despite this assessment, the benthic macroinvertebrate community does not seem to have been substantially impacted.

Water Quality:

Stream pH (5.6 units) was below VADEQ's water quality standard (6.0 units). All other water quality analyses did not indicate any significant issues. Nutrient concentrations and fecal coliform densities were among the lowest observed during the spring sampling period.

Site Number B-010

Stream: Little Tomahawk Creek

Site: Charter Colony Parkway Across from John Tyler Community College

Watershed: Upper Swift Creek

Subwatershed: Little Tomahawk Creek

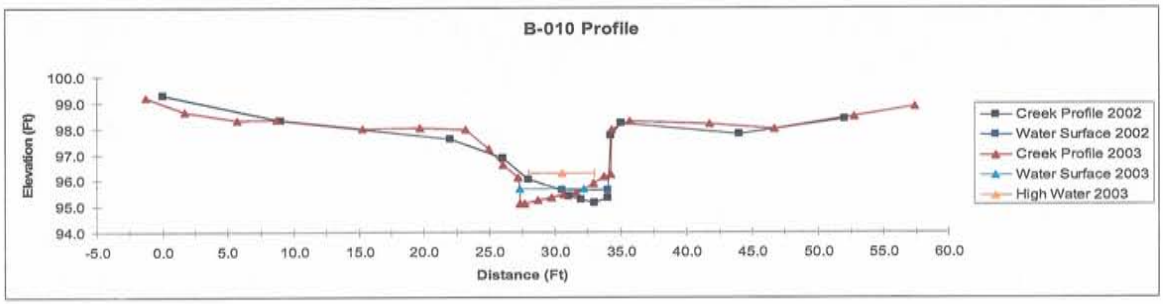
Approximate Drainage Area (acres): 200

Stream Order: 1

Ecoregion: High River Terrace (1)

Landuse: Residential and Commercial; New Construction

Stream Hydrologic Profile: Was not measured in 2004 or 2005 due to destruction of reference points.



Bioassessment:
The bioassessments have steadily decreased from "Slightly Impaired" in 2002/2003 to "Moderately Impaired" in 2004 to "Severely Impaired" in 2005. Declines in percent predators recovered, lack of taxa variability and increases in pollution tolerant organisms were the major reasons for the lower score. The greatest HBI score (7.2) was observed at this site. Overall numbers of macroinvertebrates recovered in the sample (n = 58) were sparse with segmented worms (*Oligochaetes*) and midges (*Chironomidae*) the most common taxa observed.

Habitat Assessment:
The degraded habitat ("Non-Supporting") observed in 2004 continued into 2005. This site possessed the lowest habitat assessment score (76) documented in 2005. The site has been significantly impacted by the construction of an apartment complex immediately adjacent to its banks. Loss of instream habitat, increased sedimentation, channel alteration, and encroachment into the riparian area were contributing factors.

Water Quality:
Ammonia (0.07 mg/L), nitrate/nitrite (0.20 mg/L) and total phosphorus (0.035 mg/L) concentrations were elevated in 2005. Total hardness (48.9 mg/l), total suspended solids (19 mg/L) and Biological Oxygen Demand (13.8 mg/L) values were the greatest observed at all sites. All other parameters were acceptable. Within each category, this site was the most impaired stream segment monitored during 2005.

Site Number B-011

Stream: Tributary to Swift Creek

Site: Downstream of Mount Hermon Road

Watershed: Upper Swift Creek

Subwatershed: Upper Swift Creek

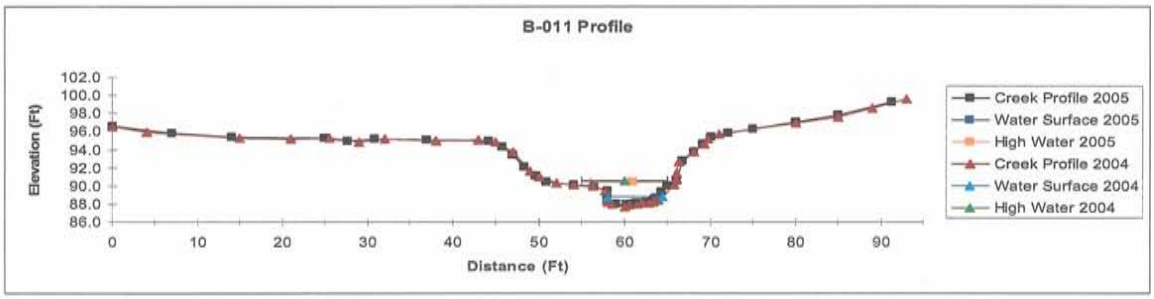
Approximate Drainage Area (acres): 730

Stream Order: 1

Ecoregion: Triassic Basin (2)

Landuse: Forested and Low Density Residential

Stream Hydrologic Profile:



Bioassessment:

The bioassessment improved during 2005 from "Moderately Impaired" to "Slightly Impaired". Bioassessments at this site have improved each year from the "Severely Impaired" status noted in 2002/2003. Improved EPT taxa richness (14 taxa recovered) and greater percentage of predators recovered were most responsible for the observed increase in the 2005 assessment. Midges (*Chironomidae*), common netspinner caddisflies (*Cheumatopsyche*) and *Baetidae* mayflies were the most commonly encountered organisms.

Habitat Assessment:

The assessment score improved from the "Non-Supporting" condition observed in past years to "Partially Supporting" in 2004. Although poor bank stability and decreased vegetative bank cover remained present, improvements in epifaunal substrate/available cover, pool variability and channel flow status were recorded.

Adequate rainfall for the past two years have enabled this stream to rebound from the effects of the drought and may be the reason behind the improvements noted for the past two years.

Water Quality:

Slightly elevated concentrations of dissolved (0.057 mg/L) and total (0.081 mg/L) phosphorus were recorded. All other water quality analyses did not indicate any significant issues.

Site Number B-012

Stream: Turkey Creek

Site: Downstream Mosley Road

Watershed: Upper Swift Creek

Subwatershed: Turkey Creek

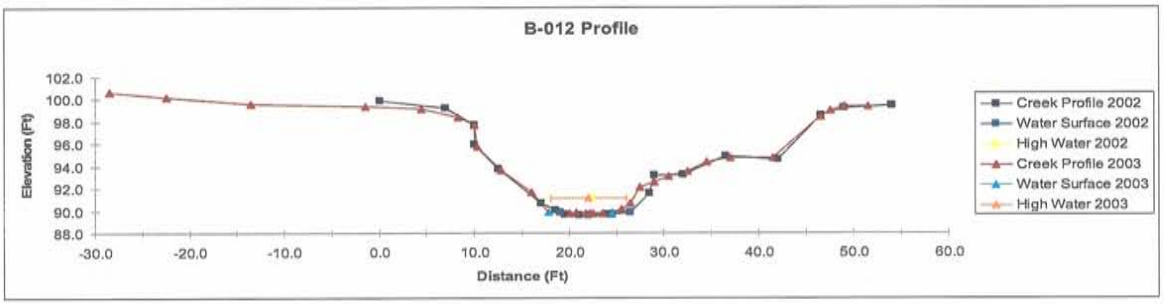
Approximate Drainage Area (acres): 140

Stream Order: 1

Ecoregion: Triassic Basin (2)

Landuse: Forested and Low Density Residential

Stream Hydrologic Profile:



Bioassessments:

Bioassessments declined from a "Moderately Impaired" status in 2002 to a "Severely Impaired" status during 2003. An overall loss of taxa richness and a decrease in the observed percent predator metric contributed to the downgraded category. Hilsenhoff Biotic Index scores were high for both years suggesting a biological community dominated by tolerant organisms. Predominant taxa included a variety of *Chironomidae* species, Amphipods (*Cragonyx spp.)* and the blackfly *Simulium*. Interestingly, perturbation sensitive macroinvertebrates as indicated by EPT richness were well represented for both years.

Habitat Assessment:

In stream habitat assessment scores indicated a "Non-Supporting" condition for both years. Poor bank stability, decreased vegetative bank cover and riparian zone width contributed to the low scores observed. Heavy erosion was obvious along both banks for extensive areas.

Water Quality:

pH values were slightly depressed during 2003 (5.5 units). All other analyses did not indicate any apparent problems with water quality.

Site Number B-013

Stream: Blackman Creek

Site: End of Ledo Road

Watershed: Upper Swift Creek

Subwatershed: Blackman Creek

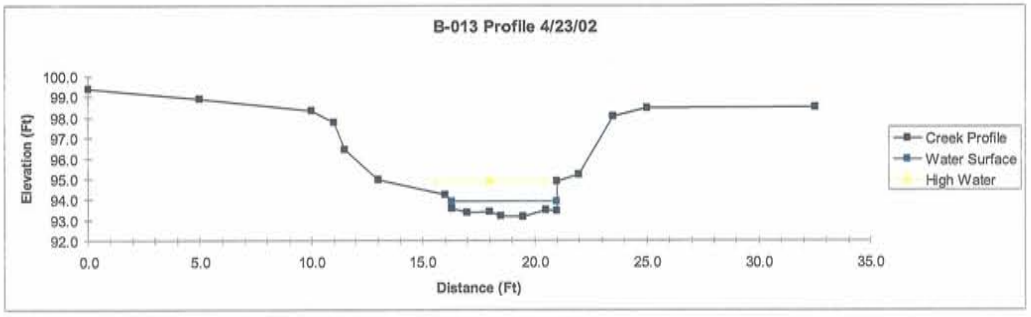
Approximate Drainage Area (acres): 320

Stream Order: 1

Ecoregion: Triassic Basin (2)

Landuse: Forested with Recent Silvaculture

Stream Hydrologic Profile:



Bioassessments:

The monitoring conducted at Blackman Creek in 2002 was suspended in 2003 to allow for additional sites to be assessed in other watersheds. Bioassessments in 2002 indicated a "Non-Impaired" status. The site possessed high taxa richness and EPT taxa were abundant. Overall, benthic macroinvertebrate community structure was excellent and reflective of a well functioning stream system.

Habitat Assessment:

In stream habitat assessment scores indicated a "Partially Supporting" condition for 2002. Recent logging in the watershed and in the immediate area of the stream decreased the riparian zone width scoring and influenced the overall status.

Water Quality:

pH values were slightly depressed during 2003 (5.1 units). All other analyses did not indicate any apparent problems with water quality.

Site Number B-028

Stream: Otterdale Branch

Site: Behind Clover Hill Athletic Complex

Watershed: Upper Swift Creek

Subwatershed: Otterdale Branch

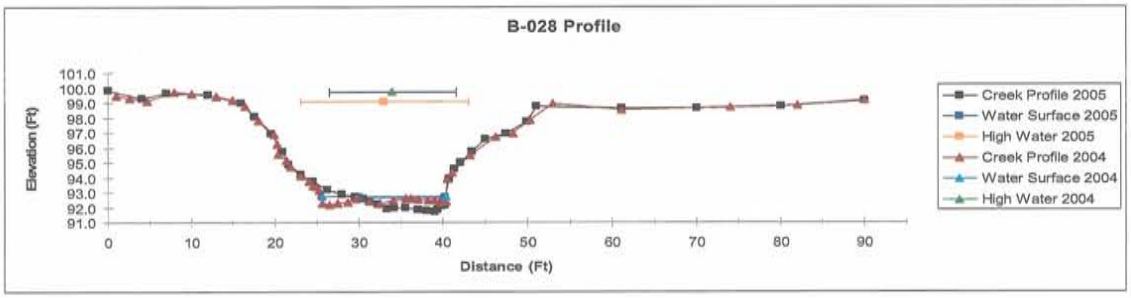
Approximate Drainage Area (acres): 1100

Stream Order: 2

Ecoregion: Triassic Basin (2)

Landuse: Forested, Ballfields, Park

Stream Hydrologic Profile:



Bioassessment:

The assessment remained unchanged from 2004 to 2005 and indicated a "Slightly Impaired" status. An increase in total taxa richness was noted as well as a slight improvement in the HBI score. EPT taxa richness continued to be strong. Decreases in the percent gatherer and predator taxa were observed. The most abundant macroinvertebrates in the sample included midges (*Chironimidae*), Blackflies (*Simulium*), and the mayflies *Acerpenna* and

Leptophlebia. The metric scores remained strong indicating a balanced and fully functional benthic macroinvertebrate community.

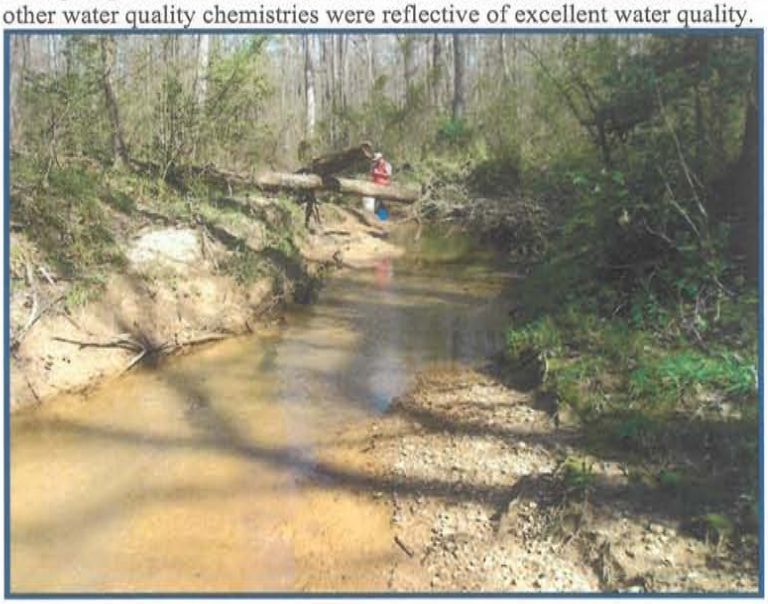
Habitat Assessment:

The instream habitat assessment score remained "Supporting" in 2005. Continued strong scores were noted within the substrate and instream cover and channel geomorphology sections. Additionally, the riparian and bank structure metrics scored well. A park road crossing immediately downstream of the site was under construction at the time of the survey.

Water Quality:

Ammonia nitrogen (0.05 mg/L), dissolved phosphorus (0.039 mg/L) and total phosphorus (0.055 mg/L) concentrations were slightly elevated. All other water quality chemistries were reflective of excellent water quality.

Site Number B-030



Stream: Tomahawk Creek

Site: Downstream of railroad crossing off Dry Bridge Road

Watershed: Upper Swift Creek

Subwatershed: Tomahawk Creek

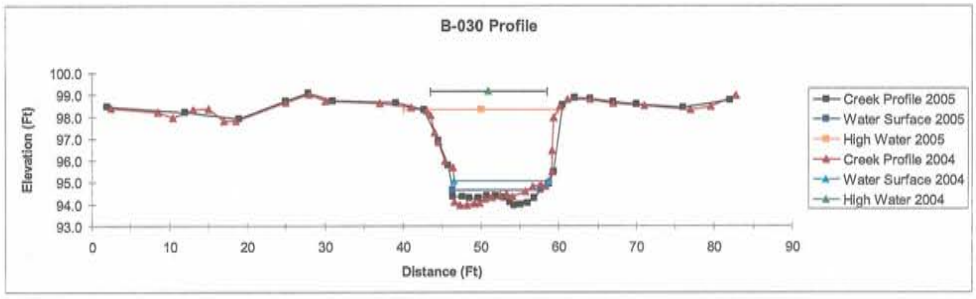
Approximate Drainage Area (acres): 1100

Stream Order: 1

Ecoregion: Triassic Basin (2)

Landuse: Forested

Stream Hydrologic Profile:



Bioassessment:

The bioassessment in 2005 decreased substantially from the "Slightly-Impaired" category observed for the past three years to a "Severely Impaired" status. During 2005, decreases were noted in total taxa richness and EPT taxa richness. A substantial increase in the percentage of collector/gather organisms, particularly Chironomidae

(n=1048, 90.8% of sample) was noted. Interestingly an increase in *Chironomidae* taxa has been observed over the past two years. Percent composition of predators and scrapers were lower than in 2004. Some other organisms present in order of abundance were worms (n=32), crayfish (n=26) and *Cheumatopsyche* caddisflies (n=15).

Habitat Assessment:

The instream habitat assessment declined from the "Comparable to Reference" score noted in previous years to a "Partially Supporting" condition in 2005. Decreases in metric scores within the substrate and instream cover section and lower flow conditions were the primary reasons for the observed decline.

Water Quality:

Increased nutrients were observed during 2005. Elevated concentrations of ammonia (0.04 mg/L), nitrate/nitrite nitrogen (0.25 mg/L) and total phosphorus (0.035 mg/L) were noted. The nitrogen values were similar to the 2004 concentrations while the total phosphorus level was lower

Site Number B-034

Stream: Swift Creek

Site: Downstream of Otterdale Road

Watershed: Upper Swift Creek

Subwatershed: Swift Creek

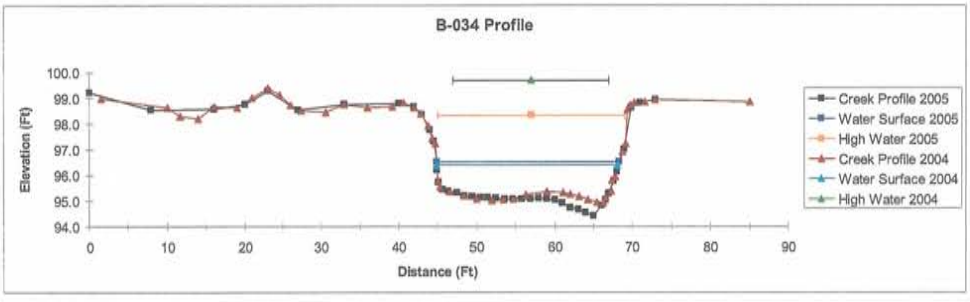
Approximate Drainage Area (acres): 13696

Stream Order: 4

Ecoregion: Triassic Basin (2)

Landuse: Forested, Upstream Wetland and Road Crossing

Stream Hydrologic Profile:



Bioassessment:

The bioassessment in 2005 continued to indicate the "Slightly Impaired" observed since 2003. While there were slight improvements in total taxa and EPT taxa richnesses, most all other metrics remained similar to prior years. For the second year in a row, a marked decrease in predator macroinvertebrates was recorded. Fauna well

represented in the sample included various *Chironomidae* species, flathead mayfly larvae (*Stenonema*), fingernail clams (*Pisidium*), and worms.

Habitat Assessment:

The instream assessment score remained "Partially Supporting" in 2005. Similar scores were observed for all metrics indicating little if any change in stream structure over the year.

Water Quality:

Dissolved (0.046 mg/L) and total (0.054 mg/l) phosphorus concentrations were elevated. All other water quality analyses did not indicate any significant issues. It should be noted that a Chesterfield County Department of Utilities Water Quality Monitoring station is immediately upstream of this site and may provide the interested reader with several years worth of detailed water quality data.

Site Number B-035

Stream: Horsepen Creek

Site: Upstream of Otterdale Road

Watershed: Upper Swift Creek

Subwatershed: Swift Creek

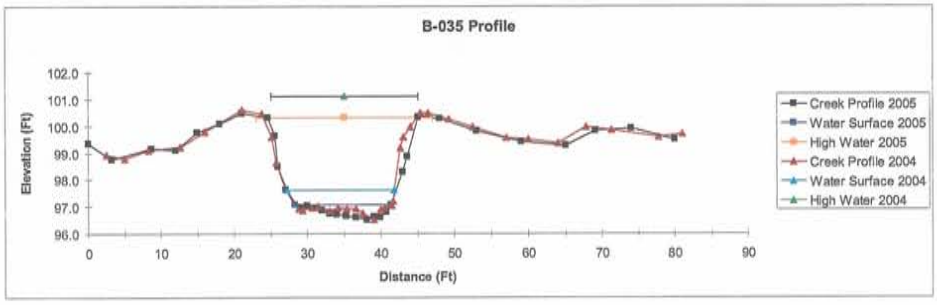
Approximate Drainage Area (acres): 2378

Stream Order: 3

Ecoregion: Triassic Basin (2)

Landuse: Forested

Stream Hydrologic Profile:



Bioassessments:

This site was added in 2004 in order to provided more detailed coverage of the Upper Swift Creek streams that have pending development in their watersheds. As in 2004, the bioassessment in 2005 indicated a "Slightly Impaired" status. The assessment score was precisely the same for both years (60.0). Moderate total taxa and EPT taxa richness values were observed. Hilsenhoff Biotic Index scores were low indicating a benthic community dominated by pollution sensitive taxa. Fauna well represented in the sample included *Chironomidae* taxa, blackfly larvae (*Simulium*), *Acerpenna* mayflies and the stonefly *Perlesta*.

Habitat Assessment:

The instream assessment score improved from the "Non-Supporting" condition observed in 2004 to a "Partially Supporting" status in 2005. Slight improvements were noted in the epifaunal substrate/available cover and the pool/substrate metrics.

Water Quality:

As in 2004, a slightly low pH (5.8 units) was observed at this site in 2005. Ammonia nitrogen (0.03 mg/L), dissolved phosphorus (0.030 mg/L) and total phosphorus (0.058 mg/L) concentrations were slightly elevated. All other water quality chemistries were reflective of good water quality. It should be noted that a Chesterfield County Department of Utilities Water Quality Monitoring station is immediately downstream of this site and may provide the interested reader with several years worth of water quality data.

Site Number B-036

Stream: Little Tomahawk Creek

Site: Adjacent to Holding Pond Lane

Watershed: Upper Swift Creek

Subwatershed: Swift Creek

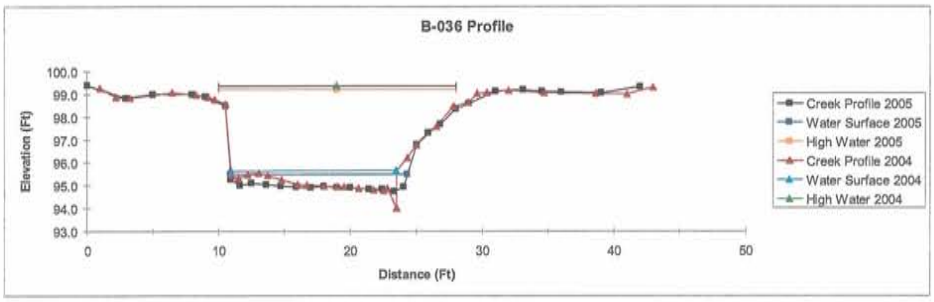
Approximate Drainage Area (acres): 1539

Stream Order: 3

Ecoregion: Triassic Basin (2)

Landuse: Residential, Forested

Stream Hydrologic Profile:



Bioassessment:

This site was added in 2004 in order to provided more detailed coverage of the Upper Swift Creek streams that have pending development in their watersheds. In 2005, the bioassessment declined from the "Moderately Impaired" status observed in 2004 to a 'Severely Impaired" condition. The total taxa richness value was the lowest among all

sites and no EPT organisms were observed. Only 63 individual macroinvertebrates were recovered in the sample. Hilsenhoff Biotic Index scores remained high indicating a benthic community dominated by pollution tolerant taxa. An increase in collector/gather organisms and a decrease in predators were noted. Scraper taxa, notably gastropods, were well represented.

Habitat Assessment:

The instream assessment score remained "Non-Supporting" in 2005, with conditions generally the same as those observed in 2004. Typical of creeks in the area, the stream's substrate is comprised largely of sand resulting in a general lack of instream habitat and cover for macroinvertebrates. The streams banks are not well vegetated and are prone to erosion during periods of high flow. Adequate flow was observed during the monitoring event. A large stormwater retention pond is located adjacent to the monitoring site.

Water Quality:

All water quality parameters in 2005 did not indicate any significant water quality issues. This is interesting given the fact that benthic macroinvertebrates were scarce at the time of sampling.

Discussion:

Table 2 presents a summary of the bioassessment categories observed for the past four years. Most recent assessments (2005) indicate that the majority of the streams investigated in the Upper Swift Creek Watershed are "Slightly Impaired". "Non-Impaired" conditions have not been observed in the Upper Swift Creek Watershed since 2003. Declines in biological condition have been observed at Turkey Creek (B-002 and B-012), Tomahawk Creek (B-030) and Little Tomahawk Creek (B-010 and B-036). Common observations at these sites include a loss of taxa richness (the number of different animals recovered), decreases in sensitive species and increases in pollution tolerant organisms. An improvement in the biological condition has been observed at the Tributary to Swift Creek (B-011) over the past three years. Otterdale Branch (B-028), Swift Creek (B-024) and Horsepen Creek (B-035) have exhibited similar scores for the past few years.

Table 2. A summary of Bioassessment Categorical Scores observed in the Upper Swift Creek Watershed, 2002 – 2005

Site	Stream	Bioassessment Category			
		Severely Impaired	Moderately Impaired	Slightly Impaired	Non Impaired
B-002	Turkey Creek		2004	2003	2002
B-010	Little Tomahawk Creek	2005	2004	2002/2003	
B-011	Trib to Swift Creek	2002/2003	2004	2005	
B-012	Turkey Creek	2003	2002		
B-013	Blackman Creek				2002
B-028	Otterdale Branch		2002	2004/2005	2003
B-030	Tomahawk Creek	2005		2002/2003/2004	
B-034	Swift Creek			2003/2004/2005	

B-035	Horsepen Creek			2004/2005	
B-036	Little Tomahawk Creek	2005	2004		

Table 3 presents a summary of the habitat assessment categories observed for the past four years. Assessments since 2002 have demonstrated that the majority of the streams investigated in the Upper Swift Creek Watershed possess either "Partially Supporting" or "Non-Supporting" habitat. The most heavily impacted stream is Little Tomahawk Creek that has "Non-Supporting" habitat at both the upper and lower reach sites. Assessments on the upper reaches of the stream (Site B-010) have demonstrated continual loss of the habitat's supportive capabilities since 2003. Similar observations have also been made at the upper Tomahawk Creek site (B-030). Traits common among these sites included a loss or lack of available instream habitat, increased sedimentation, bank erosion and reduced riparian areas. Improved habitat assessment scores have been observed at four sites since 2002 (B-011, B-028, B-034 and B-035). Improvements in flow and quality of instream characteristics such as more frequent pools and increases in available habitat were factors in the observed changes.

Table 3. A summary of Habitat Categorical Scores observed in the Upper Swift Creek Watershed, 2002 – 2005

Site	Stream	Habitat Assessment Category			
		Non Supporting	Partially Supporting	Supporting	Comparable to Reference
B-002	Turkey Creek	2004	2002/2003		
B-010	Little Tomahawk Creek	2004/2005	2002	2003	
B-011	Trib to Swift Creek	2002/2003/2004	2005		
B-012	Turkey Creek	2002/2003			
B-013	Blackman Creek		2002		
B-028	Otterdale Branch		2002/2003	2004/2005	
B-030	Tomahawk Creek	2002	2005		2003/2004
B-034	Swift Creek	2003	2004/2005		
B-035	Horsepen Creek	2004	2005		
B-036	Little Tomahawk Creek	2004/2005			

A comprehensive suite of chemical parameters has been collected since 2002. These measurements are collected to provide a general water quality "snapshot" at the time the biological and habitat assessments are obtained. A more detailed long-term description of water quality in the Upper Swift Creek Watershed is available from the Department of Utilities' Source Water Monitoring Program (Swift Creek Reservoir) reports. For the past four years, instream measurements of dissolved oxygen, conductivity, total dissolved solids and temperature have yielded values that were within Virginia state water quality standards and

normally expected ranges. Observations of pH over the years has shown that several streams in the Upper Swift Creek Watershed are, or have been, acidic to the point of being less than the 6.0 unit standard set by the State of Virginia's Department of Environmental Quality.

Table 4. Streams in the Upper Swift Creek Watershed with pH values below Virginia DEQ standard of 6.0 units, 2002 - 2005

pH (units)	2002	2003	2004	2005
5.1	B-013			
5.2			B-011, B-035	
5.5		B-010, B-012		
5.6		B-011	B-002	
5.7		B-030		
5.8	B-028			B-035
5.9	B-010, B-011, B-012	B-002		

Fecal coliform densities observed in the tributaries of the Upper Swift Creek Watershed have largely been below the Virginia State one-time sampling standard of 400 MPN/100ml. Of the sites at which the values have been above this threshold, only the Tributary to Swift Creek (B-011) has exhibited multi-year violations (Table 5).

Table 5. Sites at which fecal coliform densities were ≥400 MPN/100m, 2002 – 2005. Asterisks denote no violations

		Fecal Coliform Density (Most Probable Number/100ml)			
Site	Stream	2002	2003	2004	2005
B-010	Little Tomahawk Creek	*	*	500	*
B-011	Trib to Swift Creek	*	1600	≥1600	*
B-030	Tomahawk Creek	*	*	≥1600	*

Nutrient concentrations as measured by total/dissolved phosphorus and ammonia/nitrate nitrogen have varied among sites over the past four years. Most recent data (2005) indicate elevated phosphorus and nitrogen concentrations at six sites in the Upper Swift Creek Watershed (table 6).

Table 6. Elevated nutrient concentrations observed in the Upper Swift Creek Watershed, Spring 2005

Site	Stream	2005 Nutrient Concentrations (mg/L)			
		Total Phosphorus	Dissolved Phosphorus	Ammonia Nitrogen	Nitrate/Nitrite Nitrogen
B-010	Little Tomahawk Creek	0.035		0.07	0.20

B-011	Trib to Swift Creek	0.081	0.057		
B-028	Otterdale Branch	0.055	0.037	0.05	
B-030	Tomahawk Creek	0.035		0.04	0.25
B-034	Swift Creek	0.054	0.046		
B-035	Horsepen Creek	0.058	0.03	0.03	

Typically, total suspended solids measurements at the time of sampling within the Upper Swift Creek Watershed have been less than 20 mg/L. The greatest total suspended solids concentrations observed have occurred at the upper Little Tomahawk Creek site (19.0 mg/L, 2005), Tomahawk Creek (25 mg/L, 2004) and the Tributary to Swift Creek (26 mg/L, 2004). Since 2002, the majority of Biological Oxygen Demand determinations have been less than 3.0 mg/L. The greatest BOD value recorded in the Upper Swift Creek Watershed has been 13.8 mg/l and occurred at the upper Little Tomahawk Creek site (B-010) in 2005. Hardness measurements during the past four years have indicated soft water (<85 mg/L as $CaCO_3$) throughout the Upper Swift Creek Watershed.

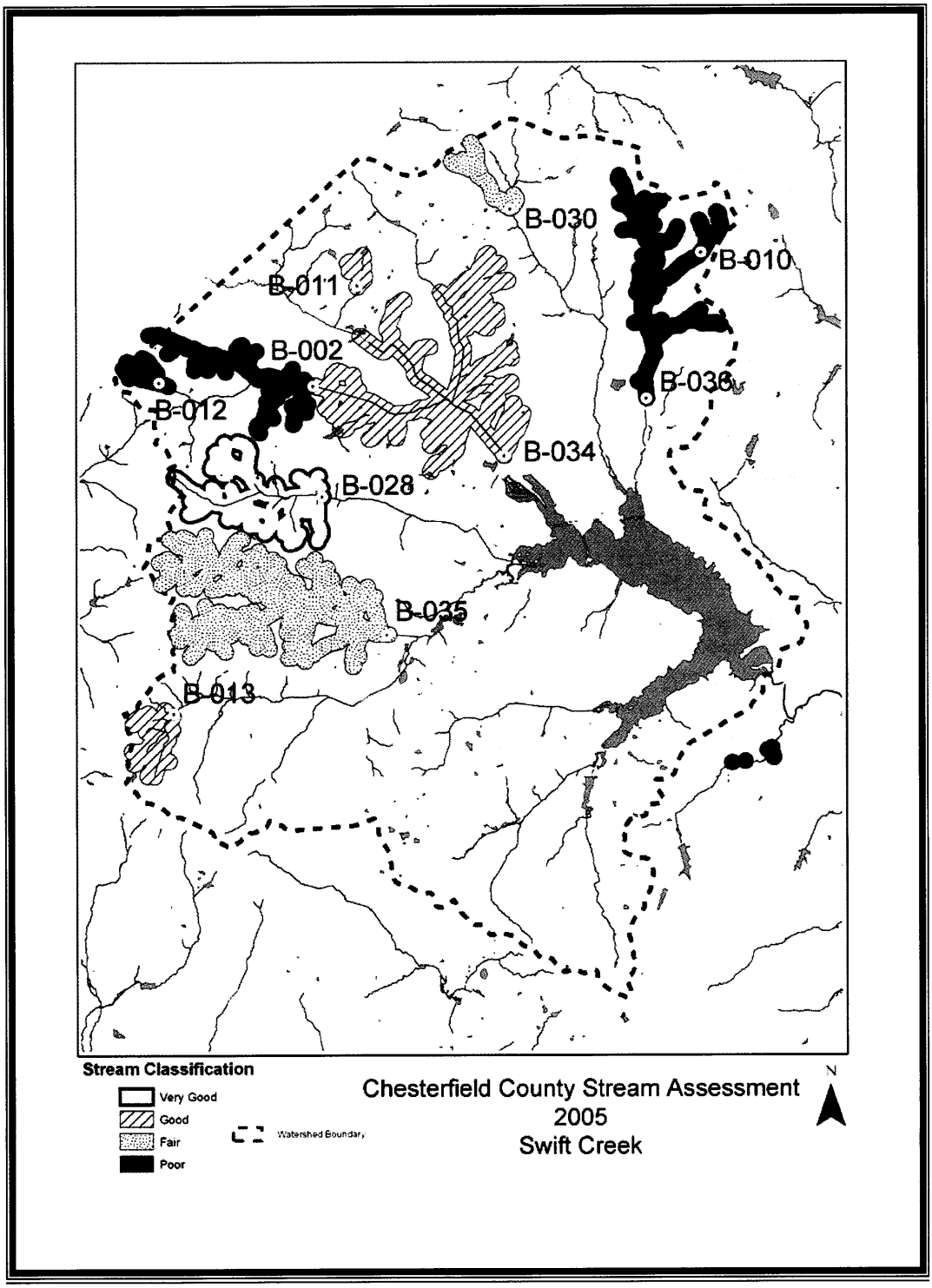
An index of water quality using the biological data, habitat assessment and select chemical parameters was developed to provide for an overall evaluation of stream health in the County. The chemical parameters used were those that possessed a Virginia State Water Quality Standard (pH, Dissolved Oxygen and Fecal Coliform). The index generated a numerical score that corresponded to a level of quality for the stream segment. The results of the analysis are outlined in table 7 and are reflective of all monitored streams in the watershed for the period of 2002 to 2005. A map depicting the most recent assessments is presented on the following page (Map 2).

In 2005, poor water quality was present at both the upper (B-010) and lower (B-036) portions of Little Tomahawk Creek. While chemical water quality was relatively good at these sites, "Severely Impaired" biological communities combined with "Non-Supporting" habitats were the reasons for the assessment. The upper (B-012) and lower (B-002) reaches of Turkey Creek also were evaluated as having poor water quality in 2004 and 2003 respectively. Once again, biology and habitat were the deciding factors. The best water quality has consistently been observed at the Otterdale Branch site for the past three years. In 2005, improvements were noted at the Tributary to Swift Creek (B-010) site.

Table 7. Categorical scores of the index of water quality analysis, 2002 - 2005

Site	Stream	Water Quality Category				
		2002	2003	2004	2005	Most Recent Assessment
B-002	Turkey Creek	Very Good	Fair	Poor	*	**Poor**
B-010	Little Tomahawk Creek	Fair	Good	Poor	Poor	**Poor**
B-011	Trib to Swift Creek	Poor	Poor	Poor	Good	**Good**
B-012	Turkey Creek	Poor	Poor	*	*	**Poor**
B-013	Blackman Creek	Good	*	*	*	**Good**
B-028	Otterdale Branch	Fair	Good	Very Good	Very Good	**Very Good**
B-030	Tomahawk Creek	Fair	Good	Very Good	Fair	**Fair**
B-034	Swift Creek	*	Fair	Good	Good	**Good**
B-035	Horsepen Creek	*	*	Fair	Fair	**Fair**
B-036	Little Tomahawk Creek	*	*	Fair	Poor	**Poor**

Map 2. Most recent water quality assessments of WASP monitoring sites in the Upper Swift Creek Watershed


B-030
B-010
B-011
B-002
B-036
B-012
B-034
B-028
B-035
B-013
Stream Classification
Very Good
Good
Fair
Poor
Watershed Boundary
Chesterfield County Stream Assessment
2005
Swift Creek
N

References:

Barbour, M.L., J. Gerritsen, B.D. Snyder and J.B Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition*. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.

CH2M Hill, 2000. *Chesterfield County VPDES Permit Implementation; 1999 Annual Bioassessment Report.* Annual Report to Chesterfield County, Virginia.

Chesterfield County Office of Water Quality, 2005. *2004 Assessment of the Biology, Habitat and Chemistry of Select Streams and Watersheds of Chesterfield County, Virginia.* Chesterfield County, Virginia.

Chesterfield County Office of Water Quality, 2004. *2002-2003 Assessment of the Biology, Habitat and Chemistry of Select Streams and Watersheds of Chesterfield County, Virginia.* Chesterfield County, Virginia.

Chesterfield County Office of Water Quality, 2002. *Chesterfield County Water Quality Section Field and Laboratory Instrument Standard Operating Procedures*. Chesterfield County, Virginia.

VADEQ, 2004. *Water Quality Standards 9 VAC 25-260-5 Virginia Water Quality Standards*. Virginia Department of Environmental Quality, Richmond, Virginia.

Blank page

Supporting Document G

Upper Swift Creek Watershed - Riparian Buffer Analysis

The Upper Swift Creek Watershed, which is approximately 34,560 acres, contains 100 miles of perennial streams as determined by field verification. The one hundred foot resource protection area (RPA), which is protected by the Chesapeake Bay Act, contains approximately 2450 acres. This 100-foot riparian buffer was analyzed in GIS by overlaying the buffer with 2002 aerial photography. Several land cover categories were determined. The categories are: forested, grass/scrub, residential, wetland/marsh, impervious/paved, or golf course. The following figure depicts a percentage breakdown of land within the buffer.

Figure 1.Percentage of land cover categories within riparian buffer

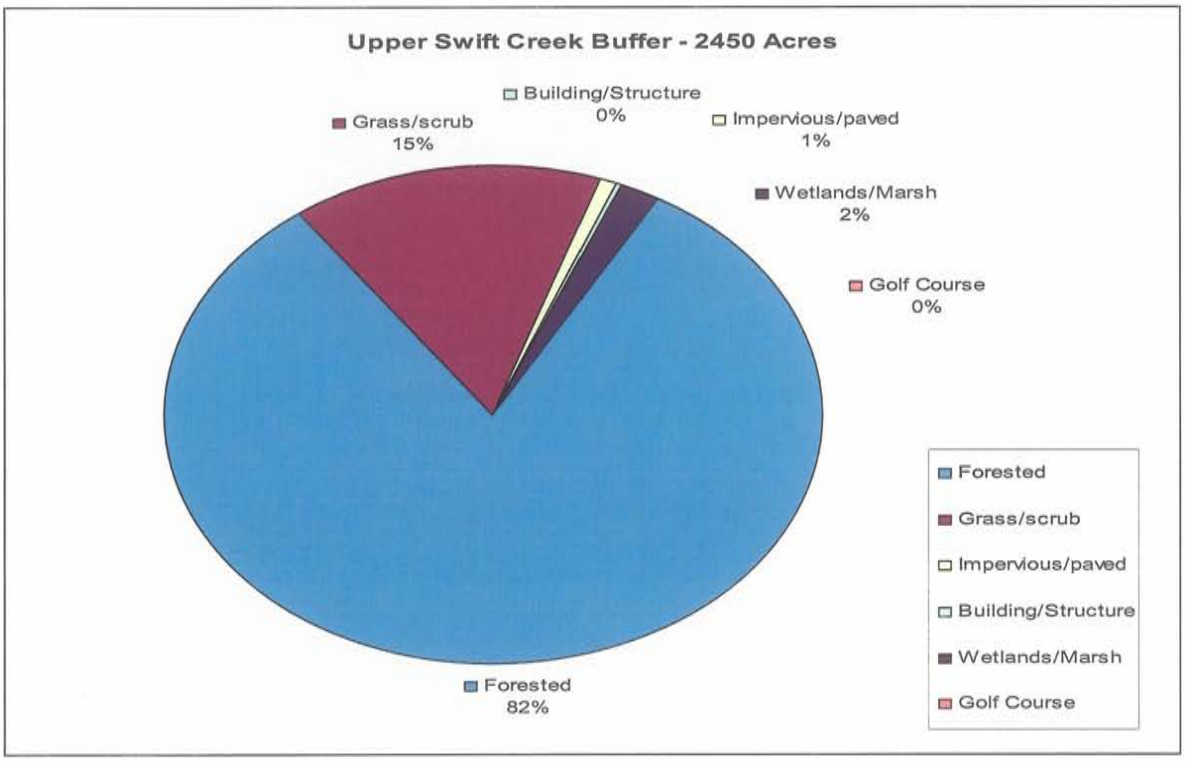


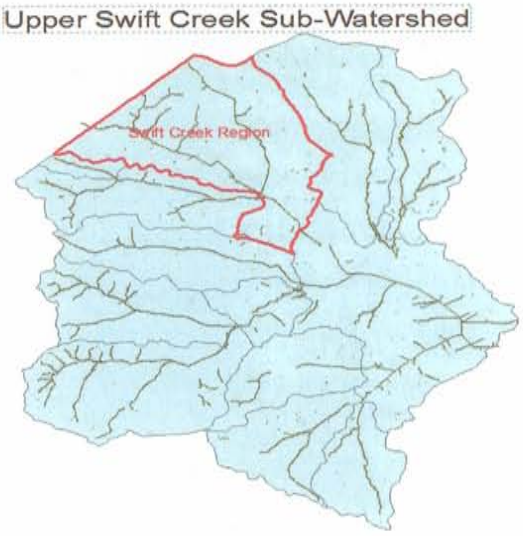
Figure 2. Land cover categories in acres

Category	Acreage
Forested	1994
Grass/scrub	377
Paved surfaces	*19*
Buildings	*8.5*
Wetlands/marsh	*43*
Golf course	***3***
Total	**2450**

Sub-watershed Analysis:

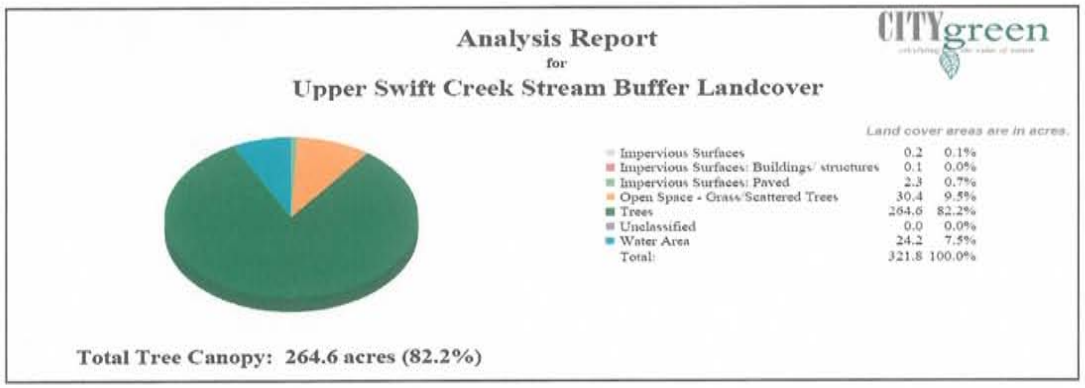
Ecosystem services can be calculated based on land cover area provided by the forested area using CITYgreen analysis software. We have not analyzed the entire Upper Swift Creek Watershed but we have assessed the Swift Creek (Figure 3) sub watershed, which is approximately 5427 acres. The results are impressive.

Figure 3. Swift Creek Region



The CITYgreen report shows a significant economical and ecological resource provided by the trees in the riparian buffer for the Swift Creek region. Sections of the report are included in figures 4 – 6.

Figure 4. – The report shows the percentage land cover in the riparian buffers for the Swift



Creek region.

Figure 5. – The report shows the air pollution removal in pounds and value of the pollution removal by trees in the buffer.

Air Pollution Removal

Nearest Air Quality Reference City: **Washington DC**

	Lbs. Removed/yr	Dollar Value
Carbon Monoxide:	1,179	$503
Ozone:	9,198	$28,260
Nitrogen Dioxide:	4,717	$14,492
Particulate Matter:	7,783	$15,965
Sulfur Dioxide:	3,774	$2,832
Totals:	**26,652**	**$62,052**

Carbon Storage and Sequestration

Total Tons Stored:	**11,385.71**
Total Tons Sequestered (Annually):	**88.64**

Figure 6. – The report shows the positive affect of the trees in the riparian buffer on water quality. The figures are based on the land without tree coverage. For example, with no trees in the buffer the total stormwater savings would be zero dollars. But with 82% tree coverage in the buffer the county saves more than 4.5 million dollars based on storm water maintenance costs.

Stormwater

Water Quantity (Runoff)

2-yr, 24-hr Rainfall: 3.25 in.

Curve Number reflecting existing conditions: 68

Curve Number using default replacement landcover: 95

Additional Storage volume needed: 2,259,258 cu. ft.

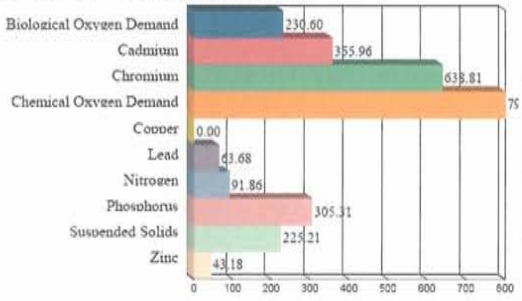
Construction cost per cu. ft.: $2.00

Total Stormwater Savings: **$4,518,516**

Annual costs based on payments over 20 years at 6% interest: **$393,945** per year

Water Quality (Contaminant Loading)

Percent Change in Contaminant Loadings



It is important to keep in mind that the report above only analyzes 321 acres of riparian buffers which accounts for only six percent of land cover in the Swift Creek sub-watershed of the Upper Swift Creek Watershed. Even with the small amount of coverage this report shows the potential savings, both economically and ecologically, are enormous.

Land Cover Change Analysis:

CITYgreen also allows users to analyze potential future changes in land cover. The user can specify land coverage percentages and the program will report changes in water and air quality as well as economic values. For example, the county may be considering new developments or agriculture expansion in the Upper Swift Creek area that affect land cover. The program then allows us to determine the impacts of the development by changing the percentage of land cover. Therefore, based upon the prior percentages in *figure 4*, we shifted the land cover percentages to make crop lands account for 26%, decreased the tree cover to 33%, and increased open space or grass cover to 30% to create a hypothetical situation if development occurred. In turn, the land cover changes allow us to see the impact on water and air quality. The results were impressive. With the decrease in tree cover from 82% to 33%, the stormwater savings decreased from $4.5 million in *figure 2* to $2 million (see figure 7).

Figure 7. – Stormwater Example – The report shows the significant loss of water quality due to a decrease in tree cover.

Stormwater

Air Pollution Removal

Nearest Air Quality Reference City: **Washington DC**

	Lbs. Removed/yr	Dollar Value
Carbon Monoxide:	472	$201
Ozone:	3,679	$11,304
Nitrogen Dioxide:	1,887	$5,797
Particulate Matter:	3,113	$6,386
Sulfur Dioxide:	1,509	$1,133
Totals:	**10,661**	**$24,821**

Carbon Storage and Sequestration

Total Tons Stored:	**4,554.28**
Total Tons Sequestered (Annually):	**35.46**

Figure 8. – Analysis shows a significant loss of air pollution removal.

Although these numbers are remarkable they do not tell the whole story. The CITYgreen program that creates these reports is formatted for general land covers, not riparian areas. Therefore, it likely that riparian land covers have a more drastic impact on water quality than the CITYgreen software indicates. Besides pollution removal riparian forests also serve to maintain

stream temperatures through shading, stabilize the stream banks, and provide erosion control. In addition, CITYgreen does not calculate the economic impact of cleaner water on recreation, the fishing industry or drinking water filtration. Simply put, the numbers generated by CITYgreen are likely on the low end in terms of ecological services and the dollar value of the services.

Page break

Supporting Document H

TECHNICAL MEMORANDUM **CH2MHILL**

Construction Site Sediment and Total Phosphorus Loading

PREPARED FOR: Chesterfield County

PREPARED BY: Tim Hare - CH2M HILL
Cheri Salas - CH2M HILL

COPIES: Laurens van der Tak – CH2M HILL

DATE: August 15, 2005

Contents

Introduction

Chesterfield County staff and residents are concerned that the extensive planning involved with managing the Upper Swift Creek Reservoir watershed will be rendered ineffective by large amounts of construction-related sediment and associated total phosphorus (TP). During a previous study of the watershed, the Watershed Management Master Plan and Maintenance Program for the Swift Creek Reservoir Watershed (CH2M HILL, 2000), a simple modeling exercise was used to estimate the annual construction sediment and phosphorus load to the reservoir. The results indicated up to 8,000 tons per year of sediment and 798,000 pounds per year of TP could be released by construction activities.

CH2M HILL has been contracted to conduct a more refined assessment of construction-related loads within the reservoir. The purpose of this technical memorandum (TM) is to describe the approach to and the results of estimating sediment load and TP load generated by construction activity within the Upper Swift Creek Reservoir watershed in Chesterfield County, Virginia. The assessment was conducted in three main steps.

1. Compute soil loss for two pilot sites, with and without erosion and sediment control, and determine average annual soil loss per acre based on the results from the two pilot sites
2. Apply the average annual soil loss to the Swift Creek Reservoir watershed based on land anticipated to be developed within each tributary watershed
3. Determine sediment load delivered to Swift Creek Reservoir based on standard sediment delivery ratios and extrapolate the associated TP load

The result of this analysis was an estimation of the annual amount of sediment and TP reaching the reservoir from construction-related activities.
The remainder of this TM describes the three steps in the analysis, the results, and provides conclusions about how these results impact the previous watershed management plans.

Soil Loss

Pilot Sites

Two pilot sites were selected by the County to represent the range of development potential within the reservoir watershed. Figure 1 shows the locations of the two pilot sites.
The Cosby Road High School site is a 63-acre site dedicated to a high school and associated support facilities. It was selected to represent typical commercial and institutional sites, where significant site grading would be required to create level land needed for the facility. The site was modified to reduce the existing 5 to 10 percent slopes to nearly flat slopes for use in constructing the school and associated parking lots and sport fields.
The Millcrest at the Brandermill site is an 8-acre section of an existing subdivision. It was selected as a representative plan for residential development. Site grading is limited to creating roads and infrastructure, with limited modification to the residential lots.

Soil Loss Computations

Soil loss during construction was computed using the Revised Universal Soil Loss Equation, Version 2 (RUSLE2), a computer program developed by the U.S. Department of Agriculture – - Agricultural Research Service and Natural Resource Conservation Service (NRCS) to estimate soil erosion due to rainfall and runoff. The program was developed to examine erosion due to agricultural activities; however, it is also applicable to construction activity due to the significant land disturbance involved. RUSLE2 is frequently used to estimate erosion for preparing erosion and sediment control plans for construction sites.

RUSLE2 is based on the USLE equation, and automates the computation of coefficients reflecting regional climate, land slope, slope length, soil type, and land management, as follows:

$$a_i = r_i k_i l_i S c_i p_i$$

where, all on the *ith* day:
$\mathbf{a_i}$ = average annual soil loss
$\mathbf{r_i}$ = erosivity factor
$\mathbf{k_i}$ = soil erodibility factor
$\mathbf{l_i}$ = soil length factor
S = slope steepness factor
$\mathbf{c_i}$ = cover-management factor
$\mathbf{p_i}$ = supporting practices factor
Land slope and slope lengths were computed for each drainage area defined in the erosion and sediment control plan. Both existing and proposed slopes were evaluated to determine the range of soil loss rates. The drainage areas, slope lengths, and slope steepness for each subbasin for the two pilot sites are summarized in Appendix A. According to the construction plans, the soils at the Millcrest site are dominated by Mayodan gravelly sandy loam at a 12 to 20 percent slope (soil type 151D). Based on the site location and County soil maps, the soils at the Cosby Road High School site are dominated by Mayodan gravelly sandy loam at a 2 to 6 percent slope (soil type 151B).
County-specific climate and soils data were available from the NRCS online database (NRCS, 2005) and are directly accessed by the RUSLE2 computer program. Land management parameters are associated with conservation tillage and crop rotation activities. These are not applicable to construction activities, as land is assumed to be bare during construction. The default construction management inputs were selected, which equate to no vegetation or conservation activities (c_i=1, p_i=1). Erosion and sediment controls were considered in a separate analysis.
The results from RUSLE2 for the two pilot sites indicate that the average annual soil loss rate will range from 7 to 33 tons per acre per year. The results for individual drainage areas for both proposed and existing site grading are provided in Appendix A. The results of this first step assume that the entire site is disturbed throughout the year and that no erosion and sediment control practices were used.

Erosion and Sediment Control

The sediment control devices proposed on the two pilot construction sites included sediment basins and sediment traps. Literature values from the Center for Watershed Protection were used to determine the percent removal of sediment from the runoff. These values are summarized in Table 1 for the two practices used on the pilot sites, and several additional practices for reference.
The reported average percent reduction was applied to the soil loss from the drainage area served by each device and summed to determine the total sediment load discharged from each site with sediment controls. The reduced soil loss rate ranges from 2 to 13 tons per acre per year, when sediment control devices are included. The results of individual drainage areas for both proposed and existing site grading are provided in Appendix A.

Other potential sediment control devices that could be considered include silt fence and hay bales. These were not proposed on the pilot sites and are not included in this analysis. These devices are typically used on small areas of disturbance, but tend to be less effective than sediment basins and traps. Although these devices can have significant localized impacts, it was assumed that from a watershed basis, the variation resulting from these devices was within the range of uncertainty of the results.

Erosion controls include temporary seeding of dormant areas, tarps over staging piles, and sod or seeding of completed grading. It was determined that the most effective means of approximating the impacts of erosion control measures was in the amount of time over which land was assumed to be bare, which was taken into account in the extrapolation of soil loss rates to the watersheds.

TABLE 1
Percent Reduction in Sediment Load Due to Erosion and Sediment Controls

Device	Low	High	Average
Sediment Basin	55	100	70
Sediment Trap	-7	100	60
Filter Fabric Fence	0	100	70
Vegetative Filter Strip	20	80	70
Seeding (after vegetative establishment)	50	100	90
Sod	98	99	99

Source: EPA, 1993

Sediment and Total Phosphorus Delivery

Sediment Delivery

Once the annual soil loss rate was calculated for 1 acre of land disturbed for an entire year, the results could be applied to construction throughout the watershed. Developable area was calculated for each tributary watershed based on the existing 2004 land use and the build-out land use plans developed to assess the future Upper Swift Creek Land Use Plan.

Annual average area disturbed was calculated by dividing developable area by the period of development, 25 years. Average sediment load was then calculated by multiplying the annual area disturbed by the soil loss rates calculated in Section 2 and by the fraction of the year a typical area remains disturbed. A factor of 0.75 was used in this analysis, meaning the typical area is disturbed for 9 months. Table 2 summarizes the annual area disturbed and resulting soil loads for each tributary watershed.

TABLE 2
Total Sediment Load from Proposed Development by Tributary Watershed
Upper Swift Creek Plan Modeling Support

Tributary Watershed	Total Area Disturbed (ac/yr)	Annual Average Area Disturbed (ac/yr)	Annual Sediment Load no ESC (ton/yr)	Annual Sediment Load with ESC (ton/yr)
Little Tomahawk Creek	1,229	49.2	260 – 1,220	80 - 490
Tomahawk Creek	2,017	80.7	420 – 2,000	140 - 800
Swift Creek / Turkey Creek System	4,640	185.6	970 – 4,600	310 – 1,840
Otterdale Creek	1,543	61.7	320 – 1,530	100 – 610
Blackman Creek / Horsepen Creek / Deep Creek System	5,446	217.8	1,140 – 5,400	370 – 2,160
Dry Creek	1,044	41.8	220 – 1,040	70 – 410
West Branch	674	26.9	140 – 670	50 – 270
Fuqua Creek	769	30.7	160 – 760	50 – 300
Direct Runoff Component	947	37.9	200 – 940	60 – 380
Total	**18,310**	**732.4**	**3,830 – 18,160**	**1,230 – 7,260**

Notes:
Total area disturbed is for Chesterfield County only. Land disturbance upstream in Powhatan County is not included in this study.
ESC = erosion and sediment controls

The average sediment load is the sediment leaving disturbed areas in construction sites. It is not the amount of sediment reaching the reservoir. A large percentage of the sediment load that is dislodged from the land is removed from the tributary flow prior to reaching the reservoir, primarily due to settling during overland and in-channel flows. One method of determining the fraction of sediment load that reaches the reservoir is the application of a sediment delivery ratio (SDR). The SDR used for this study is based on the NRCS National Engineering Handbook (SCS, 1983). Section 3, Chapter 6 of the National Engineering Handbook presents the SDR as a curve in Figure 6-2. A recent study by U.S. Environmental Protection Agency (EPA) Region 4 (Greenfield, 2001) converts the curve to the following formula:

$$SDR = 0.417762A^{-0.134958} - 0.127097$$

where A is the watershed area in square miles.

Most of the reservoir's tributaries drain directly to the reservoir and are independent of each other. The best approach to determine the portion of sediment load that reaches the reservoir is to calculate separate SDRs for each tributary. Turkey Creek is included in the Swift Creek system.

Blackman Creek is included in the Horsepen Creek/ Deep Creek system. Table 3 includes the tributary watershed areas and their corresponding SDRs. Note that the Swift Creek system only includes that part of the watershed within Chesterfield County.
Applying the tributary SDRs to the average sediment dislodged from the surface results in the sediment loads that are predicted to be delivered to the reservoir each year. These loads are included in Table 4.

TABLE 3
Tributary Watershed Sediment Delivery Ratios
Upper Swift Creek Plan Modeling Support

Tributary Watershed	Drainage Area (sq. miles)	SDR
Little Tomahawk Creek	3.70	0.223
Tomahawk Creek	5.67	0.203
Swift Creek / Turkey Creek System	21.76	0.149
Otterdale Creek	3.86	0.221
Blackman Creek / Horsepen Creek / Deep Creek System	11.58	0.173
Dry Creek	3.06	0.232
West Branch	2.90	0.235
Fuqua Creek	2.38	0.245
Direct Runoff Component	7.03	0.194

As an example, this paragraph carries a single watershed through the analysis. Dry Creek is predicted to have 1,044 acres of developed land, which equates to an average of 41.8 acres of land developed per year over the 25-year development horizon. Of this, 41.8 acres times 33.06 ton/ac/yr without erosion and sediment control (ESC) times 0.75 (the portion of year land disturbed) results in 1,036 tons of sediment dislodged from the surface. Using the SDR for Dry Creek, 1,036 tons per year times 0.232 results in 240 tons of sediment delivered to Swift Creek Reservoir per year.

TABLE 4
Sediment Delivery to Upper Swift Creek Reservoir
Upper Swift Creek Plan Modeling Support

Tributary Watershed	Sediment Delivery no ESC (ton/yr)	Sediment Delivery with ESC (ton/yr)
Little Tomahawk Creek	60 – 270	20 – 100
Tomahawk Creek	90 – 410	30 – 160
Swift Creek / Turkey Creek System	140 – 680	50 – 270
Otterdale Creek	70 – 340	20 – 140
Blackman Creek / Horsepen Creek / Deep Creek System	200 – 930	60 – 370
Dry Creek	50 – 240	20 – 100
West Branch	30 – 160	10 – 60
Fuqua Creek	40 – 190	10 – 70
Direct Runoff Component	40 – 180	10 – 70
Total	720 – 3,400	230 – 1,350

Phosphorus Delivery

Sediment in runoff is a known source of TP. If one can determine the relationship between sediment and TP, then the construction sediment loads delivered to the reservoir can be used to predict the accompanying TP load. The Chesterfield Department of Utilities has established in-stream monitoring stations for each of the main tributaries. These monitoring stations are typically located in the lower part of each tributary watershed, in a reach that has little or no influence from reservoir tailwater.

CH2M HILL used the monitoring data collected from 1974 to 1997 to calculate the ratio between total suspended solids (TSS) and TP. The average TSS/TP ratio was calculated from wet weather flow data from the nine monitoring stations. Base flow data was not included in the calculations. The average TSS/TP ratio was 1,009. The resulting TP loads delivered to the reservoir is summarized in Table 5.

TABLE 5
Total Phosphorus Delivery by Tributary Watershed
Upper Swift Creek Plan Modeling Support

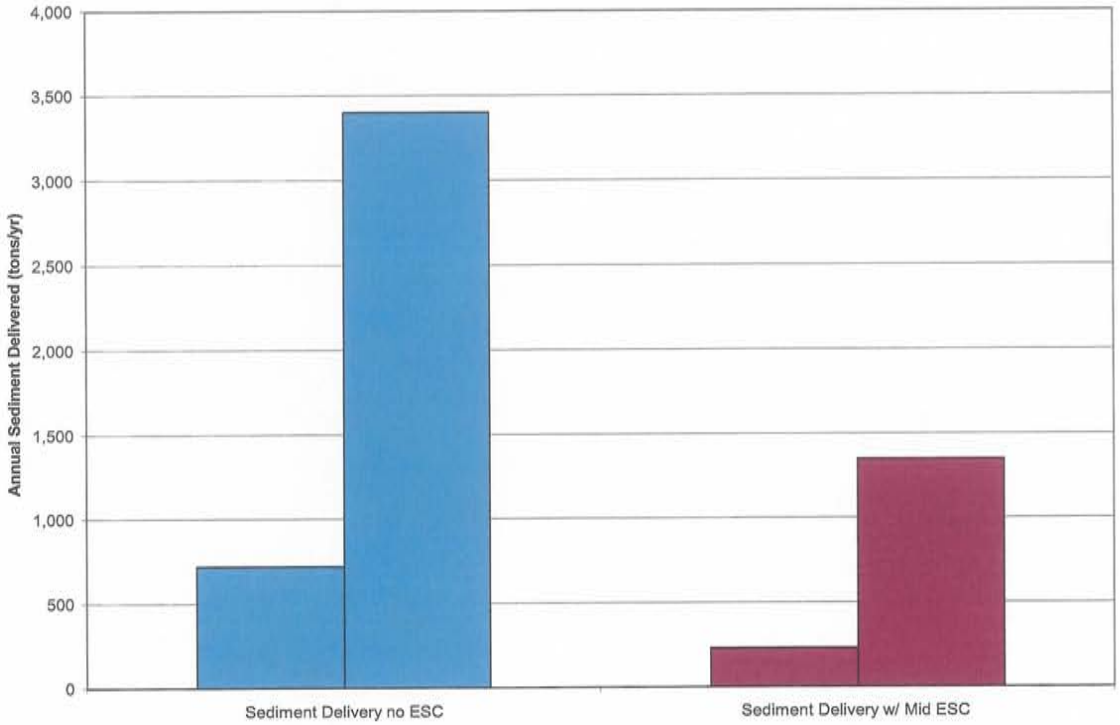
Tributary Watershed	TP Delivery no ESC (lb/yr)	TP Delivery with ESC (lb/yr)
Little Tomahawk Creek	120 – 540	40 – 220
Tomahawk Creek	180 – 810	60 – 320
Swift Creek / Turkey Creek System	280 – 1350	100 – 540
Otterdale Creek	140 – 670	40 – 280
Blackman Creek / Horsepen Creek / Deep Creek System	400 – 1840	120 – 730
Dry Creek	100 – 480	40 – 200
West Branch	60 – 320	20 – 120
Fuqua Creek	80 – 380	20 – 140
Direct Runoff Component	80 – 360	20 – 140
Total	1,440 – 6,750	460 – 2,690

Conclusion

A typical year in the watershed could see the delivery of 720 to 3,400 tons per year of sediment from unprotected construction sites. Erosion and sediment controls are predicted to reduce the annual load to between 230 and 1,350 tons per year. The actual load reaching the reservoir is probably somewhere between the two ranges. This is due to a number of factors, including portions of projects that are not protected by erosion and sediment controls, the challenge of properly maintaining the control facilities, and the occurrence of larger storms that exceed the design capacity of the controls. The amount of sediment predicted to reach the reservoir is significantly less than the 8,000 tons per year, as estimated in 1999. The differences between the two estimates can be explained by different techniques, development periods, and TSS/TP ratios. If the County can maintain good erosion and sediment controls, then the predicted TP delivery to the reservoir is 460 to 2,780 pounds per year. The Management Plan and updated modeling both point to the required goal in the range between 25,000 and 26,000 pounds of TP per year at projected build out of the watershed. In terms of annual TP loading goal, the TP associated with construction sediment is approximately 2 to 11 percent of the annual goal for the reservoir. Without erosion and sediment controls, the range is 1,500 to 6,970 pounds per year, or approximately 6 to 27 percent of the annual goal.

Based solely on annual loading rates, the current assimilative capacity of the reservoir should be able to accommodate the additional TP from construction sites if erosion and sediment controls are properly installed and maintained (Figure 2). In time, this could become an issue if erosion and sediment controls are not properly installed. However, the timely establishment of the BMPs identified in the Management Plan will further reduce the construction site TP load reaching the reservoir.

FIGURE 2
Summary of Annual Sediment Loads Due to Construction
Upper Swift Creek Reservoir Watershed Management Plan



One issue that has not been examined to date is the impact of the sediment that settles to the bottom of the reservoir. Based on the annual TP loading rate and annual volume of runoff, the Reckhow Model does not explicitly calculate the cumulative effects of the sediment and associated TP deposited on the bottom of the reservoir. This sediment will be a potential TP source for years to come, particularly as the reservoir stratifies each summer.

Another issue to consider is stream health. The sediment delivery ratios for each of the tributary watersheds range from 17 to 25 percent. The converse is that 75 to 83 percent of the sediment leaving construction sites does not reach the reservoir and is instead deposited during overland flow, and largely on stream bottoms. The result is a probable loss of habitat for many of the benthic macroinvertabrates and other fauna.

The County's Watershed Assessment and Stream Protection Program (WASP) is dedicated to "preserve, protect, and restore the ecological integrity of the County's streams and other water resources." The portion of the sediment load deposited in the tributaries will require additional management from the WASP.

References

CH2M HILL. 2000. Watershed Management Master Plan and Maintenance Program for the Swift Creek Reservoir Watershed, Chesterfield County, Virginia. May.

Greenfield, James M. 2001. Sediment Tool, A Simple Method for Erosion and Sediment Delivery Estimation, Water Environment Federation TMDL Science Issues Conference. May.

NRCS. 2005. http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm?action=Go+to+the+official+NRCS+RUSLE2+website. April 4.

Soil Conservation Service (SCS). 1983. U.S. Department of Agriculture, National Engineering Handbook, Section 3 Sedimentation, Chapter 6 Sediment Sources, Yields, and Delivery Ratios.

U.S. Environmental Protection Agency (EPA). 1993. Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters, Office of Water, EPA 840-B-92-002. January.

Appendix A

TABLE A-1
Milcrest RUSLE2 Input Data and Results
Upper Swift Creek Plan Modeling Support

Existing Condition

	Area, ac	Slope Length, ft	Slope, ft/ft	Soil Loss Rate, Tons/Ac/Yr	Soil Loss, Tons/yr	E&SC TSS Removal, % (Avg)	Soil Loss w/ ESC (Mid)
ST-1	2.3	180	0.100	35	81	60	32
ST-2	2.8	250	0.088	32	90	60	36
ST-3	1.3	190	0.094	32	42	60	17
ST-4	1.5	150	0.100	33	50	60	20
Total	**7.9**			**33**	**261**	**ton/yr**	**104**
						ton/ac/yr	**13**

Proposed Condition

	Area, ac	Slope Length, ft	Slope, ft/ft	Soil Loss Rate, Tons/Ac/Yr	Soil Loss, Tons/yr	E&SC TSS Removal, % (Avg)	Soil Loss w/ ESC (Mid)
Area A	1.08	130	10.4	33	36	60	14
Area B	0.66	150	8.7	26	17	60	7
Area C	1.4	158	8.9	27	38	60	15
Area D	0.85	170	7.4	23	20	60	8
Area E	0.52	160	6.3	18	9	60	4
Area F	1.34	120	9	25	34	60	13
Area G	0.3	50	10	22	7	60	3
Area H	0.3	60	10	23	7	60	3
Area I	0.27	20	10	16	4	60	2
Area J	0.35	30	10	18	6	60	3
Total	**7.07**			**25**	**177**	**ton/yr**	**71**
						ton/ac/yr	**10**

Range across site conditions w/o ESC	25 to 33	T/Ac/y
Range across site conditions w/ ESC	0 to 35	T/Ac/y
Average across site conditions w/o ESC	29.1	T/Ac/y
Average across site conditions w/ ESC	12	T/Ac/y

TABLE A-2
Cosby High School RUSLE2 Input Data and Results
Upper Swift Creek Plan Modeling Support

Existing Conditions

	Area, ac	Slope Length, ft	Slope, ft/ft	Soil Loss Rate, Tons/Ac/Yr	Soil Loss, Tons/yr	E&SC TSS Removal, % (Avg)	Soil Loss w/ ESC (Mid)
SB1	8.05	490		26	209	70	63
SB2	5.69	670	0.051	21	119	70	36
SB3	9.55	535	0.080	36	344	70	103
SB4a	8.33	480	0.054	21	175	70	52
SB4b	4.16	230	0.087	30	125	70	37
SB5	9.85	450	0.100	26	256	70	77
ST1	1.50	290	0.079	29	44	60	17
ST2	2.00	340	0.077	30	60	60	24
ST3	1.80	170	0.073	22	40	60	16
ST4	1.30	190	0.071	22	29	60	11
ST5	1.50	340	0.035	12	18	60	7
ST6	1.80	280	0.060	20	36	60	14
ST7	1.49	290	0.088	34	51	60	20
ST8	0.80	200	0.075	26	21	60	8
Total	**57.82**			**26**	**1526**	**ton/yr**	**487**
						ton/ac/yr	**8**

Proposed Conditions

	Area, ac	Slope Length, ft	Slope, ft/ft	Soil Loss Rate, Tons/Ac/Yr	Soil Loss, Tons/yr	E&SC TSS Removal, % (Avg)	Soil Loss w/ ESC (Mid)
SB1	5.90	400	0.038	13	77	70	23
SB2	3.46	180	0.019	5	17	70	5
SB3	11.24	380	0.017	4.9	55	70	17
SB4a	10.60	390	0.034	12	127	70	38
SB4b	5.30	260	0.023	6.7	36	70	11
SB5	7.48	160	0.013	3.3	25	70	7
ST1	2.90	230	0.015	4	12	60	5
ST2	2.90	230	0.015	4	12	60	5

TABLE A-2
Cosby High School RUSLE2 Input Data and Results
Upper Swift Creek Plan Modeling Support

ST3	2.90	490	0.020	6.2	18	60	7
ST4	2.00	170	0.020	5.3	11	60	4

Proposed Conditions

	Area, ac	Slope Length, ft	Slope, ft/ft	Soil Loss Rate, Tons/Ac/Yr	Soil Loss, Tons/yr	E&SC TSS Removal, % (Avg)	Soil Loss w/ ESC (Mid)
ST5	2.00	260	0.014	3.7	7	60	3
ST6	1.39	300	0.028	8.7	12	60	5
ST7	1.50	80	0.029	7	11	60	4
ST8	1.50	30	0.033	6.5	10	60	4
ST9	2.00	420	0.020	6.1	12	60	5
Total	**63.07**			**7.0**	**440**	**ton/yr**	**142**
						ton/ac/yr	**2**

Range across site conditions w/o ESC	7 to 26	T/Ac/y
Range across site conditions w/ ESC	0 to 15	T/Ac/yr
Average across site conditions w/o ESC	17	T/Ac/y
Average across site conditions w/ ESC	5	T/Ac/yr

Supporting Document I

Education & Outreach Program

Introduction:

The Education and Outreach Program plays an important role in the Office of Water Quality. An informed citizenry is one of most important tools in maintaining and improving water quality. As more citizens move into Chesterfield County, our environmental resources are impacted by the increase in impervious surfaces; storm flows and lawn care practices. The Education and Outreach Program can be categorized in the following areas: general, targeted and volunteer activities. General education and outreach occurs on a daily basis as staff interacts with the public. All staff members utilize the OWQ publications and website as tools. The OWQ receives over 1000 citizen requests per year. Other general outreach occurs by participating in events such as Earth Day Celebrations, attending homeowner's association meetings and water quality monitoring day. Targeted outreach focuses on a specific audience or a specific issue. Local educators are an example of a targeted audience that the Office of Water Quality often serves. Other targeted outreach topics have included neighborhoods that exhibit high levels of nutrients, specific watersheds with issues and perennial flow determination with the private environmental community. Finally, volunteer activities are available for citizens who show an interest in the environment and water quality and want to actively participate in a program. These programs include citizen monitoring, storm drain marking and cleanup efforts.

General Education & Outreach:

Publications:

The Office of Water Quality developed the Water Quality Watch Fact Sheet series in 1997 for general outreach and education that describe a variety of surface water quality issues in Chesterfield County. The purpose of the fact sheets is to promote awareness of Chesterfield's water bodies, water quality problems, and measures the county is taking to address these problems. The fact sheets target both the general population as well as the business community. In addition to the original series, the Resource Protection Area Restoration Guide was created in 2004. This guide includes step-by-step instructions on the proper restoration of a riparian zone that has been disturbed. This guide contains information about Resource Protection Areas (RPAs), planting guidelines as well as an approved plant list. The manual and plant list was developed with input from representatives of the Chesapeake Bay Local Assistance Department, The Virginia Department of Forestry, and Chesterfield County. The manual was developed as a part of a Small Watershed Grant from the Fish & Wildlife Foundation. A series of "Fast Enviro-Facts" fact sheets was also created in 2004 to answer questions commonly asked by citizens. These fact sheets addressed issues such as iron bacteria blooms, foam in creeks and why tree tubes are important in RPA plantings. The Office of Water Quality partners with several other organizations for publications. For proper lawn care techniques relating to water quality, the Chesterfield County Cooperative Extension Service provides numerous brochures and fact sheets. The Friends of Chesterfield's Riverfront publishes a brochure with public access points to water and the Friends of the Lower Appomattox River recently developed a similar publication for the Appomattox River. The Office of Water Quality has found much success in partnering with other organizations for the development & publication of print and internet

resources. Several other publications are available from the Office of Water Quality, but are discussed in the "Targeted Education & Outreach Section". A list of all water quality publications can be found in the table on the following page.

ial	Type	Lead Group	Target Group
Chesterfield County Office of Water Quality website: http://www.chesterfield.gov/communitydevelopment/waterquality/	Website	Office of Water Quality	General public
Chesterfield County Resource Protection Area Restoration Guide	Booklet	Office of Water Quality	General public
Chesterfield County Resource Protection Area Restoration Guide *Chesterfield County Stormwater Management Program* *Chesapeake Bay Resource Protection Areas* *The Streams of Chesterfield County* *Homeowners Guide to Flood Plain Management* *Business & Industry Guide to Chesterfield County's Illicit Discharge Ordinance* *Household Guide to Chesterfield County's Illicit Discharge Ordinance* *Chesterfield County's Stormwater Drainage System*	Fact Sheet	Office of Water Quality	General public
What is this Orange Slime in my Creek? *What is this Foam in my Creek?* *What are those Tubes in the Field?*	Fast Enviro Facts Sheet	Office of Water Quality	General public
Pocochsock Creek Community Partnership	Brochure	Office of Water Quality	Watershed Citizens
Don't Feed the Lake	Brochure	Office of Water Quality	Citizens who live near lakes
Storm Drain Markers	Plastic marker adhered to storm drains	Office of Water Quality	General public
EcoMasters	Interactive CD	Office of Water Quality	6th grade lead science teachers
Watersheds & Water Quality in Chesterfield County	Power Point Presentation	Friends of Chesterfield's Riverfronts	6th grade students
Chesterfield Extension Website: *http://www.chesterfield.gov/HumanServices/ExtensionServices/exthome.asp*	Website	Chesterfield Extension	General Public
Six Steps to Cleaner Water (lawn & home)	Brochure	Chesterfield Extension	General Public
Home Landscape Practices to Protect Water Quality	Brochure	Chesterfield Extension	General Public
Chesterfield County – Did you Know? *(Fact sheet on lawn care)*	Fact Sheet	Chesterfield Extension	General Public
Lawn Care Clinics (5 clinics in addition to being online)	Power Point Presentation	Chesterfield Extension	Interested Public

Website:

The Chesterfield County Office of Water Quality website, which can be found at http://www.chesterfield.gov/communitydevelopment/waterquality, also serves as a valuable tool for general education & outreach. The above-mentioned publications are available online in a PDF format, as well as general water quality information, technical reports and staff contacts. Many citizens utilize the website to gather information related to various ordinances or to view water quality data.

Activities:

The Office of Water Quality staff participates in many activities that serve as general outreach and education. These activities range from appearing on local cable television shows to participating in regional educational events such as earth day and Virginia Water Quality Monitoring Day. Written press is another general educational outlet use at both the local and regional level. Staff also responds to citizen inquiries, both via the telephone and by making field visits. The staff also will attend various civic meetings as requested such as homeowner association meetings.

Targeted Education & Outreach:

Targeted education & outreach occurs for several reasons. There may be a specific audience, such as local educators, that are seeking specific information. Another type of targeted education & outreach occurs as a result of a situation or event. The Perennial Determination Workshop would be an example of this type of targeted education. Whatever be the case, targeted education & outreach is very valuable and results are often immediate and measurable after the education event occurs.

Educator Training:

The Office of Water Quality, in partnership with Friends of Chesterfield's Riverfront plays an active role with the Chesterfield Public School System. Both organizations work with the Science Lead Instructors in developing curriculum, the grants administrator in securing funding and one on one with teachers. Each year, the OWQ and Friends trains teachers in water related SOLs at teacher in-service workshops. These organizations also assist teachers in developing Chesterfield related lessons regarding water quality and give advise on local field trips. Thousands of dollars have been secured in grant funding to assist the CCPS with water quality education. One example of a recent grant was the 3-year BayScaping initiative funded by NOAA-B-WET. This grant funded the installation of a native BayScape at all elementary & middle schools in the county as well as curriculum development on how to utilize the areas as a meaningful watershed experience (MWE). In addition to technical expertise and grant funding, the OWQ also loans equipment to teachers to enhance their curriculum. The Enviroscape, which depicts non-point pollution and water quality monitoring equipment are among the most popular

items on loan. By working with the local educators, the OWQ is able to reach perhaps the largest and most important audience in Chesterfield County, the youth.

Targeted Watersheds: Pocoshock Creek:

The Office of Water Quality performs physical, chemical and biological stream sampling in its comprehensive monitoring program, the Watershed Assessment and Stream Protection Program. From this collection of data, stream segments are then categorized into general health parameters ranging from "bad" to "excellent". After identifying the health of the stream and its watershed, management strategies are applied. Pocoshock Creek was identified as having "poor" health and a Detailed Watershed Investigation was conducted in 2004 to identify the areas of concern. To complement the scientific monitoring and investigation, an educational & outreach component was developed. The "Pocoshock Creek Community Partnership" was formed as a mechanism to communicate with the community members of the watershed, including homeowners and businesses. A brochure was developed and published with funds from the Virginia Department of Conservation and Recreation for this target audience that identifies the limits of the watershed and steps they can take to improve water quality.

Don't Feed the Lake:

Every water source in Chesterfield County is valuable, but our drinking water sources are especially valuable. A publication titled "Don't Feed the Lake" was developed in the late 1980's to inform citizens on how their lawn care practices could affect the water quality of the reservoir. This publication was updated and revised with funds from the Virginia Division of Chesapeake Bay Local Assistance. The development of this brochure was a partnership of the OWQ, the Cooperative Extension Office and the Friends of Chesterfield's Riverfront. This brochure also has a link to a "Clean Lakes" website hosted by the extension office that provides additional information to interested citizens.

Perennial Steam Determination Workshop:

This workshop was a result of the 2001 revisions to the Chesterfield County Chesapeake Bay Preservation Area Designation and Management Regulations that required field determinations of perennial streams. After the adoption of these revised regulations, the Office of Water Quality identified an area of concern: the inconsistent application of the protocols developed for use in conducting field determinations of water bodies with perennial flow. While workshops and training sessions had been conducted to train staff from localities on the use of these protocols, there had yet to be a training opportunity in Virginia for the consultants who, in most cases, actually perform the determinations. To address this "gap" in training, Chesterfield County's Office of Water Quality conducted a Perennial Stream Determination Workshop in August 2005. Funding was provided by the Virginia Division of Chesapeake Bay Local Assistance. Dr. James Gregory from the North Carolina State University and the author of the North Carolina Stream Identification Protocol provided detailed training on the use of this field indicator method both

the classroom and in the field. Larry Eaton of the North Carolina Division of Water Quality will also assisted by providing training on benthic macro invertebrates. This four-day workshop had 41 attendees from both the private sector as well as localities. Results were immediately noticed by the staff.

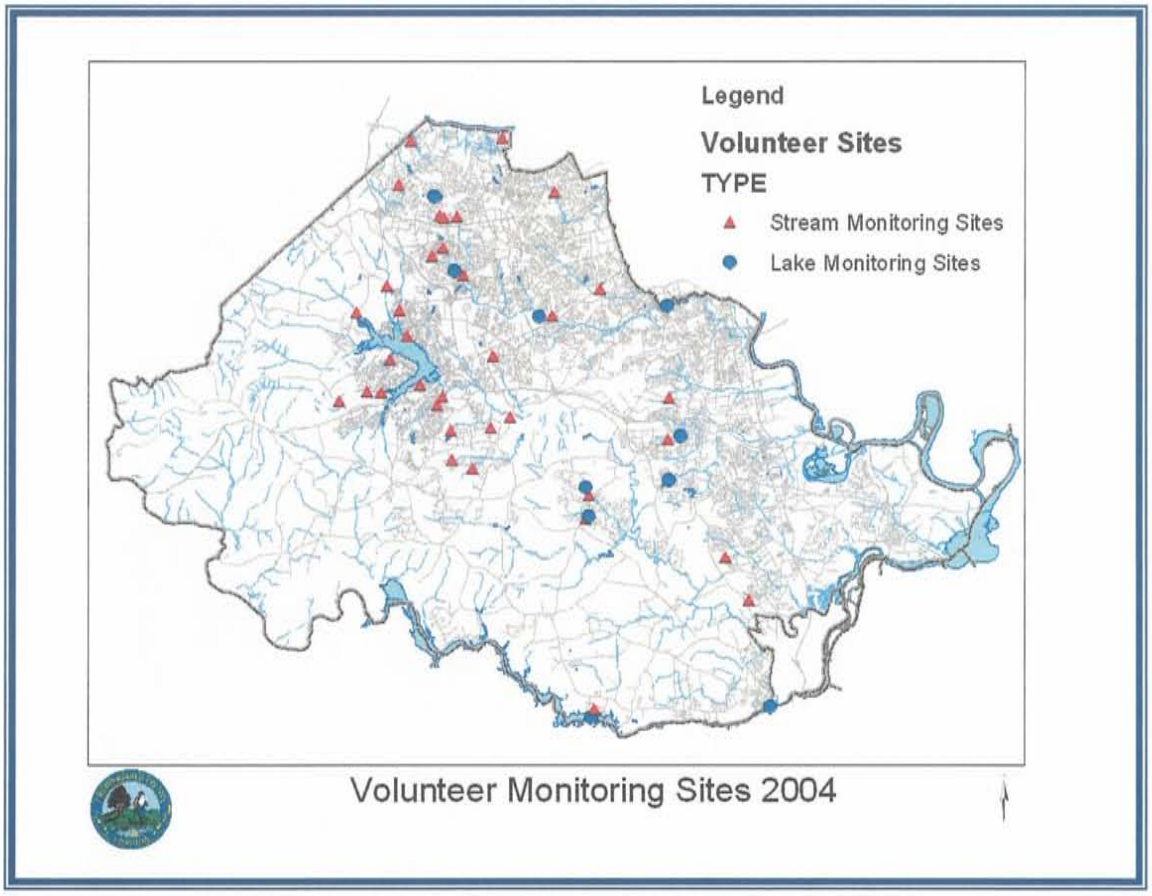
Volunteer Activities:

Volunteering in an Office of Water Quality program is an excellent way for a citizen to be able to "do something" for the environment. Volunteering can take several forms – either in the form of a long term commitment through water quality monitoring or during one time events such as cleanups and plantings. Both types of volunteering foster a sense of pride in our citizenship and encourage those citizens to take a personal role in their environment.

Volunteer Monitoring:

The volunteer monitoring data are currently being used to complement the data being collected as a part of the annual bioassesments, field monitoring and storm drain screenings. Objectives of the volunteer monitoring programs are to:

- Enhance public education activities and promote stewardship
- Involve a cross-section of County citizens
- Complement the monitoring requirements of the County's VPDES permit
- Provide a team of citizen "stream watchers" who can identify water quality improvements or degradation in their community



Stream Watchers:

Approximately 30 citizens monitored a total of 20 stream segments. These stream segments were located in 4 or the 10 major watersheds in Chesterfield County. This data is compiled in a database for trending and comparison of physical parameters are reported in the "Stream Watcher Annual Report".

Lake Monitoring:

6 lakes participated in the Volunteer Lake Monitoring Program for the 2005 growing season (April 2005 – October 2005). These lakes are located in 4 of the 10 major watersheds in Chesterfield County. This data is compiled in a database for trending and comparison of physical and chemical parameters and can be found in the "Volunteer Lake Monitoring Annual Report".

Friends of Chesterfield's Riverfront Chemical Monitoring:

The Friends of Chesterfield's Riverfront is currently administering a chemical monitoring volunteer program with technical support from the Alliance for the Chesapeake Bay. Currently six

(6) sites are being chemically tested every week by a team of 14 volunteers. These sites were selected with input from OWQ. One of the volunteers enters data for the group and acts as the QA/QA. Data is housed in the Alliance for the Chesapeake Bay database and all data is accepted by the DEQ.

Volunteer Cleanup Efforts:

The OWQ actively participates in the James River Regional Cleanup, hosted by the James River Advisory Council. This event takes place the second weekend of June and attracts over 300 citizens in Chesterfield County. The county offers 3 -4 sites in various locations along the James River and its tributaries for citizens. Over 300 bags of trash were removed by the volunteers at this one day event. The OWQ also hosts targeted stream cleanups as the need arises. For example, a community cleanup was held along Pocoshock Creek after staff identified an illegal dumping area. Local businesses of the watershed donated lunches and citizens from the watershed attended the event.

Volunteer Riparian Buffer Plantings:

Riparian buffers are among one of the most valuable resources in protecting water quality. Unfortunately, many riparian buffers have been altered and are not functioning to their full potential. Several riparian buffers in Chesterfield County have been restored with the aid of volunteers. These projects were funded by a Chesapeake Bay Small Watershed Grant and volunteers performed the actual planting with the aid of Maters Gardeners for planting quality. In addition to these sites performing an ecological function, they also have educational signage and are located at parks for maximum educational visibility.

Volunteer Riparian Buffer Monitoring:

The Volunteer Riparian Buffer Monitoring program is the newest volunteer program and was implemented in May 2006. This program tracks the progress of restored riparian buffers in the county. Funds have been secured for this program from a National Fish and Wildlife Foundation Chesapeake Bay Small Watershed Grant. Organizations will adopt a riparian buffer and make yearly surveys, gather plant survival data and take photographs.

Storm Drain Marking:

The Storm Drain Marking Program was piloted by purchasing two thousand markers with funding from the Chesapeake Bay Small Watershed Grant administered by the National Fish and Wildlife Foundation. These markers include the name of the river, stream or reservoir to which the area drains as well as the anti-pollution message of "No Dumping!" and the County's illicit discharge hotline number. After a successful pilot period, Chesterfield County received a second grant to purchase an additional 10,500 markers and expand the program countywide. Various groups have participated in this program including local schools, shopping centers and scout groups. When utilized as a scout project, an "educational component" is encouraged. The scout

is encouraged to research nonpoint source pollution and develop educational materials for the community. These activities will not only educate the citizens and build communication skills for the youth, but also ensure success in markers being left on the storm drains. To date, approximately 3000 markers have been applied in over 400 neighborhoods. This covers six of the ten major watersheds in Chesterfield County.

Upper Swift Creek:

All of the above mentioned categories of education and outreach would be valuable to implement in the Upper Swift Creek, but a targeted education & outreach approach with a strong volunteer base would have the greatest impact. Publications and programs should be developed to specifically address the challenges and issues of the Upper Swift Creek Watershed, stressing the importance of protecting the Swift Creek Reservoir as a primary drinking water source. The citizens of this watershed should have a heightened awareness of the watershed in which they live and their personal effects on the water quality. This can be accomplished by working the various audiences. Several ideas include: working with the CCPS to develop a special curriculum for schools in the USC, develop a county-sponsored volunteer program specifically for watershed residents and to encourage homeowners associations to include water quality measures such as RPA language in their covenants. The citizens of the Upper Swift Creek Watershed need to feel that they are supported and encouraged by Chesterfield County in their efforts to maintain and improve the environmental resources.

Subdivision & Utility Ordinance Amendments – Mandatory Water & Wastewater

AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY AMENDING AND RE-ENACTING SECTIONS 17-72, 17-84, 18-63 AND 18-64 RELATING TO MANDATORY SEWER AND WATER CONNECTIONS IN THE UPPER SWIFT CREEK PLAN AREA

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Sections 17-72, 17-84, 18-63 and 18-64 of the Code of the County of Chesterfield, 1997, as amended, is amended and re-enacted to read as follows:

ooo

Sec. 17-72. Improvements--Required.

o o o

(k) Connection to the county water supply system shall be required in any of the following circumstances except as may be waived by the planning commission per County Code section 18-63:

o o o

(7) When a lot is located within the area of the Upper Swift Creek Plan and suggested for any use other than Deferred Growth, unless residential zoning was obtained for such subdivision prior to (date of adoption).

o o o

(n) Connection to the county wastewater supply system shall be required in any of the following circumstances except as may be waived by the planning commission per County Code section 18-64:

o o o

(7) When a lot is located within the area of the Upper Swift Creek Plan and suggested for any use other than Deferred Growth, unless residential zoning was obtained for such subdivision prior to (date of adoption).

o o o

Sec. 17-84. Standards for lots and parcels served by onsite sewage disposal systems.

o o o

(g) No subdivision of land within the Upper Swift Creek Plan for which residential zoning is obtained after (date of adoption) may utilize onsite wastewater disposal systems unless all lots in such subdivision are at least one acre in size.

o o o

Sec. 18-63. Mandatory water connections in certain areas.

o o o

(e) All structures which are located on property that is included in the Upper Swift Creek Plan and suggested for any use other than Deferred Growth and which received zoning approval after (date of adoption) shall connect to the water system. However, the following structures shall not be required to connect unless connection to the water system is otherwise required by law:

(1) Temporary manufactured or mobile homes;
(2) Structures that were authorized by conditional uses or special exceptions which were renewed after (date of adoption);
(3) Structures that are authorized by conditional uses or special exceptions that were granted after (date of adoption) if the use that is permitted by the conditional use or special exception is incidental to a principal use that was previously allowed with a private well;
(4) Governmental structures and institutional buildings; and
(5) Residences that are located on lots that are exempt from the requirements of the subdivision ordinance.

~~(e)~~ (f) For purposes of this section "structure" and "institutional building" shall have the same meaning as in the zoning ordinance

~~(f)~~ (g) The planning commission may grant exceptions to subsections (b) and (c) during schematic plan, site plan or tentative subdivision review. The planning commission may also grant exceptions to subsections (b), (c), ~~and~~ (d) and (e) to an applicant who files an application with the planning department on a form prescribed by the director of planning and who pays a fee of $260.00 to the planning department, if the applicant is not subject to the schematic, site plan or subdivision review process. The planning commission shall find that:

(1) The use of a private well will not adversely affect the ability to extend public water to other property;

(2) The use of a private well will not encourage future development that is inconsistent with the comprehensive plan; and

(3) The use of a private well is not reasonably likely to adversely affect the public health, safety or welfare.

The planning commission may impose conditions to mitigate the impact of any exception that it grants.

Sec. 18-64. Mandatory wastewater connection in certain areas.

ooo

(d) All structures which are located on property that is included in the Upper Swift Creek Plan and suggested for any use other than Deferred Growth and which received zoning approval after (date of adoption) shall connect to the wastewater system. However, the following structures shall not be required to connect unless connection to the wastewater system is otherwise required by law:

(1) Temporary manufactured or mobile homes;

(2) Structures that were authorized by conditional uses or special exceptions which were renewed after (date of adoption);

(3) Structures that are authorized by conditional uses or special exceptions that were granted after (date of adoption) if the use that is permitted by the conditional use or special exception is incidental to a principal use that was previously allowed with a septic system;

(4) Governmental structures and institutional buildings; and

(5) Residences that are located on lots that are exempt from the requirements of the subdivision ordinance.

~~(d)~~ (e) For purposes of this section, "structure," "single-family dwelling" and "institutional building" shall have the same meaning as in the zoning ordinance.

~~(e)~~ (f) The planning commission may grant exceptions to subsections (a), (b), ~~and~~ (c) and (d) during schematic plan, site plan or tentative subdivision review. The planning commission may also grant exceptions to subsections (a), (b), ~~and~~ (c) and (d) to an applicant who files an application with the planning department on a form prescribed by the director of planning and who pays a fee of $260.00 to the planning department, if the applicant is not subject to the schematic, site plan or subdivision review process. The planning commission shall find that:

(1) The use of an on-site disposal system will not adversely affect the ability to extend public wastewater sewer to other property;

(2) The use of an on-site disposal system will not encourage future development that is inconsistent with the comprehensive plan; and

(3) The use of an on-site disposal septic system is not reasonably likely to adversely affect the public health, safety or welfare.

The planning commission may impose conditions to mitigate the impacts of any exception that it grants.

(2) That these ordinances shall become effective immediately upon adoption.

Subdivision & Utility Ordinance Amendment – Prohibition of Water & Wastewater in the Deferred Growth Area

AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY ENACTING SECTIONS 17-72.1, 18-64.1 and 18-64.2 OF THE SUBDIVISION AND UTILITY ORDINANCES RELATING TO UTILITIES IN THE UPPER SWIFT CREEK PLAN.

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Sections 17-72.1, 18-64.1 and 18-64.2 of the Code of the County of Chesterfield, 1997, as amended, are enacted to read as follows:

ooo

Sec. 17-72.1 Improvements--Prohibited.

(a) All structures which are located on property that is included in the Upper Swift Creek Plan and suggested for the Deferred Growth area shall be prohibited from connecting to the county water system, to any non-governmental public water system, or to any private water supply system designed to serve more than one lot.

(b) All structures which are located on property that is included in the Upper Swift Creek Plan suggested for the Deferred Growth area shall be prohibited from connecting to the county wastewater system, to any non-governmental public wastewater system, or to any private wastewater supply system designed to serve more than one lot.

ooo

Sec. 18-64.1. Prohibited water connections in certain areas.

All structures which are located on property that is included in the Upper Swift Creek Plan and suggested for the Deferred Growth area shall be prohibited from connecting to the county water system, to any non-governmental public water system, or to any private water supply system designed to serve more than one lot.

Sec. 18-64.2. Prohibited wastewater connection in certain areas.

All structures which are located on property that is included in the Upper Swift Creek Plan suggested for the Deferred Growth area shall be prohibited from connecting to the county wastewater system, to any non-governmental public wastewater system, or to any private wastewater supply system designed to serve more than one lot.

(2) *That this ordinance shall become effective immediately upon adoption.*

Zoning Ordinance Amendment – Buffers

AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY AMENDING AND RE-ENACTING SECTIONS 19-520, 19-522 and 19-523 OF THE ZONING ORDINANCE RELATING TO BUFFERS

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Sections 19-520, 19-522 and 19-523 of the Code of the County of Chesterfield, 1997, as amended, is amended and re-enacted to read as follows:

Secs. 19-520. Purpose and intent.

(a) Buffers shall be designed to provide a horizontal distance and open space between certain uses; preserve vegetation; provide transition and separation; reduce noise and glare; ~~and/or~~ maintain privacy, and/or preserve existing forested vistas adjacent to arterial roads. Buffers shall provide intermittent visual separation between uses.

ooo

Secs. 19-522. Buffer and screening requirements.

(a) Buffers: Buffers shall be provided as shown on the buffer width matrixes in section 19-523. Landscaping shall be accomplished within required buffers as follows:

ooo

(5) A 200-foot buffer shall consist of an unbroken strip of open space and shall be planted at three times the density of perimeter landscaping C.

ooo

Secs. 19-523. Buffer width matrix.

(a) Buffers between adjacent properties: The required width of buffers shall be determined from the following matrix. The left column of the matrix represents the zoning of the lot on which the buffer must be provided and the top column of the matrix represents the zoning district of property contiguous to the zoning lot. The interior numbers in the matrix represent the width in feet of the required buffer on the zoning lot. However, whenever the primary use on a parcel zoned O,

C or I is a single family residential subdivision, adjacent parcels shall be required to apply the buffer matrix below as though the property is residentially zoned.

BUFFER WIDTH MATRIX

	A*	R-7/88 R-TH/R-MF MH Districts
A*	+	+
R-7/88	+	+
	+	50**
R-TH/R-MF	+	50**
MH Districts	+	40
O-1	+	50
O-2	+	40
C-1	+	50
C-2	+	75
C-3	+	75
C-4	+	100
C-5	100	100
I-1	100	100
I-2	100	100
I-3		

*Note: In all zoning districts expect industrial zoned districts, buffers are only required adjacent to property zoned "A" when the property is vacant and its designation on the comprehensive plan is for residential uses. Property zoned I-1 through I-3 require a buffer when adjacent to property zoned "A" that is occupied by a residential use or the property is designated on the comprehensive plan for residential use.

**Note: Where property zoned R-7 through R-88 is adjacent to property zoned R-TH, R-MF, or MH, a buffer shall be required on the R-TH, R-MF, or MH property. No buffers are necessary between any single-family residential districts unless required by the board of supervisors, planning commission (modification to development standards and requirements only) or board of zoning appeals.

b. Buffers adjacent to streets: The required width of buffers shall be determined from the following matrix.

	Arterial Streets	
Upper Swift Creek Plan area		
R-7/88/R-TH	200	

Other areas R-7/88/R-TH	50	
	Collector Streets	
R-7/88/R-TH	35	
	Residential Collector Streets	
R-7/88/ R-TH	30	
	Local streets to negate double frontage condition	
R-7/88/R-TH	20	

(2) That this ordinance shall become effective immediately upon adoption.

Subdivision Ordinance Amendment - Buffers

AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY AMENDING AND RE-ENACTING SECTIONS 17-62, 17-70 AND 17-83 OF THE SUBDIVISION ORDINANCE RELATING TO BUFFER CONDITIONS IN THE UPPER SWIFT CREEK PLAN

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Sections 17-62, 17-70 and 17-83 of the Code of the County of Chesterfield, 1997, as amended, are amended and re-enacted to read as follows:

Sec. 17-62. Standard conditions.

ooo

(h) Any required buffers are subject to the requirements of section 17-70 (a) and (b).

ooo

Sec. 17-70. Buffers and Special Setbacks.

(a) Buffers and special setbacks outside the Upper Swift Creek Plan geography, or within the Upper Swift Creek geography for lots which have a tentative plat approved prior to (date of adoption).

1. ~~(a)~~ For lots which have a tentative plat approved after February 27, 2001, buffers shall be exclusive of easements which are generally parallel to the buffer, required setbacks and street cut and fill slopes, and shall be preserved in an undisturbed condition unless otherwise approved by the director of planning. Easements crossing buffers shall generally be at right angles or shall cross the buffer so as to have the least impact to the buffer.

2. ~~(b)~~ Post construction vegetation within the buffer shall meet a standard of not less than one and one half times the perimeter yard landscaping "C" quantity requirements as defined in County Code section 19-518 prorated for every 25 feet of depth. If insufficient vegetation exists within the buffer as determined by the director of planning, the subdivider shall submit a landscape plan to the director of planning for review and approval prior to release of the final check plat review comments. The subdivider shall install the required plant material prior to recordation. If conditions do not exist for good plant survival as determined by the

director of planning, surety shall be provided to the county in the amount sufficient to guarantee the installation approved by the director of planning and in a form as indicated in section 17-73(a). The planning department shall hold any required surety. Any such installation shall be completed prior to state acceptance of the subdivision's streets.

3. ~~(c)~~ Buffers of the following minimum width shall be provided adjacent to existing and proposed streets with the following classifications:
   a. ~~(1)~~ Arterial streets--50 feet.
   b. ~~(2)~~ Collector streets--35 feet.
   c. ~~(3)~~ Residential collector streets--30 feet.
   d. ~~(4)~~ Local streets to negate double frontage condition--20 feet.

4. ~~(d)~~ Adjacent to limited access streets, a setback distance of 200 feet, exclusive of required yards, shall be provided from the limited access street right-of-way, unless a noise study demonstrates that a lesser distance is acceptable as approved by the director of transportation. Natural vegetation shall be retained within the setback area unless removal is required to install noise attenuation measures or is approved by the planning commission.

5. ~~(e)~~ Setbacks from temporary turnarounds easements shall conform to permanent cul-de-sac right-of-way standards.

6. ~~(f)~~ A minimum setback for all structures of 20 feet shall be provided from any petroleum product transmission pipeline easement or 35 feet from the pipeline whichever is greater.

ooo

(b). Buffers and special setbacks within the Upper Swift Creek Plan geography for lots which have a tentative plat approved after (date of adoption).

(1) For lots which have a tentative plat approved after (date of adoption), buffers shall be exclusive of easements which are generally parallel to the buffer (except for buffers along arterial streets which shall allow within the buffer a maximum of 100 feet of total easement width generally parallel to the buffer, so long as easements are located a minimum of 25 feet from subdivision lot lines), required setbacks and street cut and fill slopes, and shall be preserved in an undisturbed condition unless otherwise approved by the director of planning. Easements crossing buffers shall generally be at right angles or shall cross the buffer so as to have the least impact to the buffer.

(2) Post construction vegetation within the buffer shall meet a standard of not less than one and one half times the perimeter yard landscaping "C" quantity requirements as defined in County Code section 19-518 prorated for every 25 feet of depth. If insufficient vegetation exists within the buffer as determined by the director of planning, the subdivider shall submit a landscape plan to the director of planning for review and approval prior to release of the final check plat review comments. The subdivider shall install the required plant material prior to recordation. If conditions do not exist for good plant survival as determined by the director of planning, surety shall be provided to the county in the amount sufficient to guarantee the installation approved by the director of planning and in a form as indicated in section 17-73(a). The planning department shall hold any required surety. Any such installation shall be completed prior to state acceptance of the subdivision's streets.

(3) Buffers of the following minimum width shall be provided adjacent to existing and proposed streets with the following classifications:

(a) Arterial streets--200 feet.
(b) Collector streets--35 feet.
(c) Residential collector streets--30 feet.
(d) Local streets to negate double frontage condition--20 feet.

(4) Adjacent to limited access streets, a setback distance of 200 feet, exclusive of required yards, shall be provided from the limited access street right-of-way, unless a noise study demonstrates that a lesser distance is acceptable as approved by the director of transportation. Natural vegetation shall be retained within the setback area unless removal is required to install noise attenuation measures or is approved by the planning commission.

(5) Setbacks from temporary turnarounds easements shall conform to permanent cul-de-sac right-of-way standards.

(6) A minimum setback for all structures of 20 feet shall be provided from any petroleum product transmission pipeline easement or 35 feet from the pipeline whichever is greater.

ooo

Sec. 17-83. Minimum requirements.

ooo

(c) If a subdivision borders on or contains an existing or proposed arterial or collector street, the director of transportation may require the subdivider to limit access to said street(s) requiring a local street design utilizing a series of cul-de-sacs and/or loop streets. The lots shall only be entered from such a local street, and a buffer as required in section 17-70 (a) or section 17-70 (b) shall be provided along the lot lines adjacent to the arterial or collector street.

(2) That this ordinance shall become effective immediately upon adoption.

Chesterfield County, Virginia

Memorandum

DATE: JULY 3, 2007

TO: CHESTERFIELD COUNTY PLANNING COMMISSION

FROM: RICHARD MCELFISH,
DIRECTOR OF ENVIRONMENTAL ENGINEERING
SCOTT FLANIGAN,
WATER QUALITY MANAGER

SUBJECT: PROPOSED AMENDMENT TO ORDINANCES RELATING TO WATER QUALITY IN THE UPPER SWIFT CREEK WATERSHED

The Planning Commission scheduled a public hearing for July 19, 2006 to discuss the attached proposed amendment relating to water quality in the Upper Swift Creek Watershed. The watershed consists of land in the county located upstream of the Swift Creek Reservoir Dam. The proposed amendment will promote development standards that are consistent with the protection of critical natural systems within the watershed and facilitate the county's water quality goals for area streams and the Swift Creek Reservoir.

The proposed amendment would require that the post-development total phosphorus load for all land uses within the watershed, except agricultural practices, shall not exceed 0.16 pounds per acre per year. Vested developments would not be affected. This new standard recognizes the importance of protecting the watershed by ensuring that development within the watershed contributes to the maintenance of water quality.

Staff will be available at the July 17, 2007 work session to further discuss the proposed amendment. Staff recommends that the Planning Commission recommend approval of the proposed change to the Board of Supervisors.

C: Lane B. Ramsey, County Administrator
M.D. "Pete" Stith, Deputy County Administrator for Community Development
Kirkland A. Turner, Director of Planning

AN ORDINANCE TO AMEND THE CODE OF THE COUNTY OF CHESTERFIELD, 1997, AS AMENDED, BY AMENDING AND RE-ENACTING SECTION 19-238 OF THE ZONING ORDINANCE RELATING TO WATER QUALITY REQUIREMENTS IN THE UPPER SWIFT CREEK WATERSHED

BE IT ORDAINED by the Board of Supervisors of Chesterfield County:

(1) That Section 19-238 of the Code of the County of Chesterfield, 1997, as amended, is amended and re-enacted to read as follows:

Sec. 19-238. Development regulations.

o o o

(d) (1) Stormwater runoff shall be controlled to achieve the following:

a. For any new use or development, the post-development, nonpoint-source pollution runoff loads of phosphorous and lead shall not exceed the following:

(i) Phosphorus:

1. The post-development total phosphorus load for all land uses except agricultural practices ~~residential uses located in areas identified in the Midlothian Area Community Plan for low density residential (1.01 to 2.0 units per acre), in the Route 288 Corridor Plan for Residential (1 to 2.0 dwellings per acre), and in the Upper Swift Creek Plan for single family residential: (2.0 units/acre or less),~~ shall not exceed ~~0.22~~ 0.16 pounds per acre per year.

~~2. The post-development total phosphorus load for all other uses shall not exceed 0.45 pounds per acre per year~~.

o o o

(2) That this ordinance shall become effective immediately upon adoption.

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.E.

Subject:

PUBLIC HEARING: Ordinance to Vacate an Eight-Foot Easement Across Lot 164, Eagle Cove, Section 3

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Adopt an ordinance to vacate an 8' easement across Lot 164, Eagle Cove, Section 3, as shown on the attached plat.

Summary of Information:

Joseph B. Elko and Betty S. Elko have submitted an application requesting the vacation of an 8' easement across Lot 164, Eagle Cove, Section 3. This request has been reviewed by staff and approval is recommended.

District: Matoaca

Preparer: John W. Harmon Title: Right of Way Manager

Attachments: ■ Yes ☐ No

000255

VICINITY SKETCH

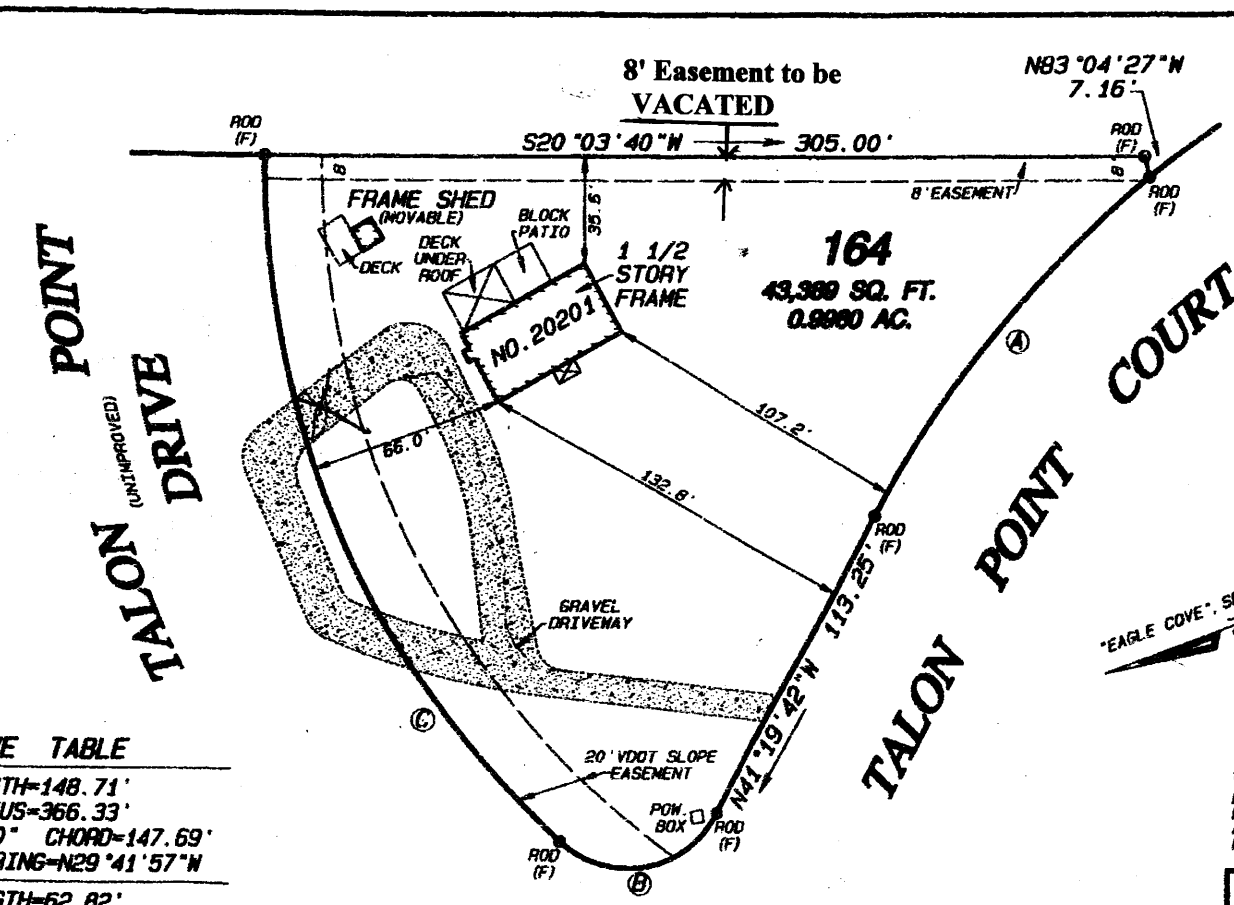
PUBLIC HEARING: ORDINANCE TO VACATE AN 8' EASEMENT ACROSS LOT 164 EAGLE COVE SECTION 3

Chesterfield County Department of Utilities

N
W
E
S

1 inch equals 416.67 feet

000256



THIS IS TO CERTIFY THAT ON AUGUST 5, 2004, I MADE AN ACCURATE SURVEY OF THE PREMISES SHOWN HEREON AND THAT THERE ARE NO EASEMENTS OR ENCROACHMENTS VISIBLE ON THE GROUND OTHER THAN THOSE SHOWN HEREON.

THIS PROPERTY IS NOT IN A H.U.D. DEFINED FLOOD HAZARD AREA. ZONE (C)

Joseph B. Elko
Betty S. Elko
20201 Talon Point Ct.
DB. 6609 PG. 533
PIN: 764609462200000

COMMONWEALTH OF VIRGINIA
MICHAEL E. BRISTOW
NO. 1305
August 5, 2004
LAND SURVEYOR

THIS SURVEY IS SUBJECT TO ANY EASEMENTS OF RECORD AND OTHER PERTINENT FACTS WHICH A TITLE SEARCH MIGHT DISCLOSE.

CURVE TABLE

Ⓐ LENGTH=148.71'
RADIUS=366.33'
Δ=23°15'30" CHORD=147.69'
CHORD BEARING=N29°41'57"W

Ⓑ LENGTH=62.82'
RADIUS=35.00'
Δ=102°50'23" CHORD=54.72'
CHORD BEARING=N10°05'29"E

Ⓒ LENGTH=258.44'
RADIUS=305.00'
Δ=48°33'00" CHORD=250.78'
CHORD BEARING=N85°47'11"E

PLAT SHOWING IMPROVEMENTS ON LOT 164, PLAN OF "EAGLE COVE", SECTION "THREE", IN THE MATOACA DISTRICT OF CHESTERFIELD COUNTY, VIRGINIA.

HARVEY L. PARKS, INC.
4508 W. HUNDRED ROAD
CHESTER, VA.
748-8641 748-0515

DATE: AUGUST 5, 2004	SCALE: 1" = 50'
DRAWN BY: N.S.M.	
CHECKED BY: M.E.B.	
F.BK.: 494, PG. 11	49411.PRO

000257

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: October 10, 2007 **Item Number:** 15.F.

Subject:

PUBLIC HEARING: Ordinance to Vacate a Portion of Lot 16, Map of Lots Staked out on Property of Harvey Horner

County Administrator's Comments:

County Administrator: _____

Board Action Requested:

Adopt an ordinance to vacate a portion of Lot 16, Map of Lots staked out on property of Harvey Horner, as shown on the attached plat.

Summary of Information:

Lewis W. Combs, Jr. has requested the vacation of a portion of Lot 16, Map of Lots staked out on property of Harvey Horner. This request has been reviewed by staff and approval is recommended.

District: Clover Hill

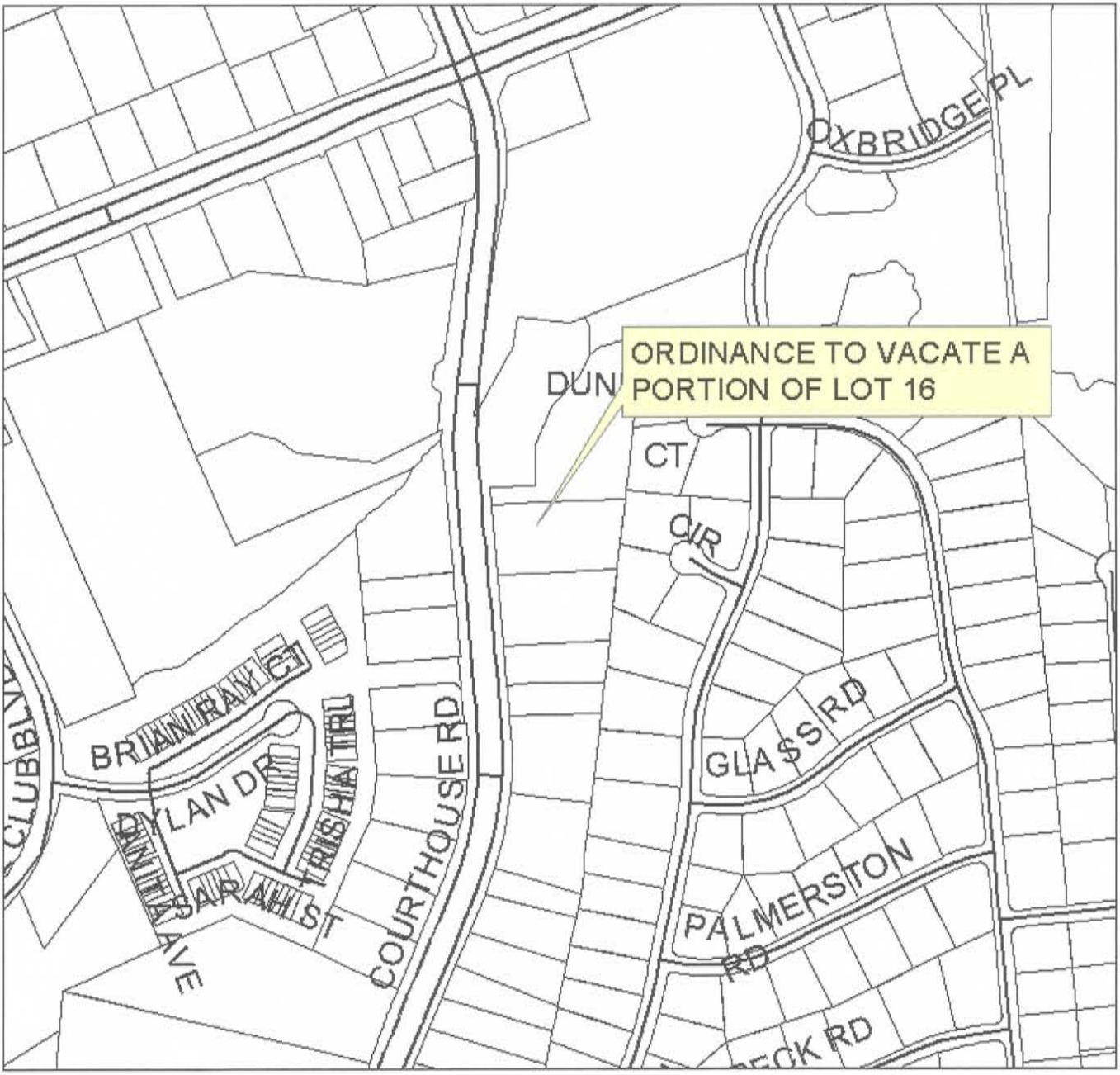
Preparer: John W. Harmon Title: Right of Way Manager

Attachments: ■ Yes ☐ No

000258

VICINITY SKETCH

PUBLIC HEARING: ORDINANCE TO VACATE A PORTION OF LOT 16 MAP OF LOTS STAKED OUT ON PROPERTY OF HARVEY HORNER



Chesterfield County Department of Utilities

N W E S

1 Inch equals 416.67 feet

000259

GENERAL NOTES

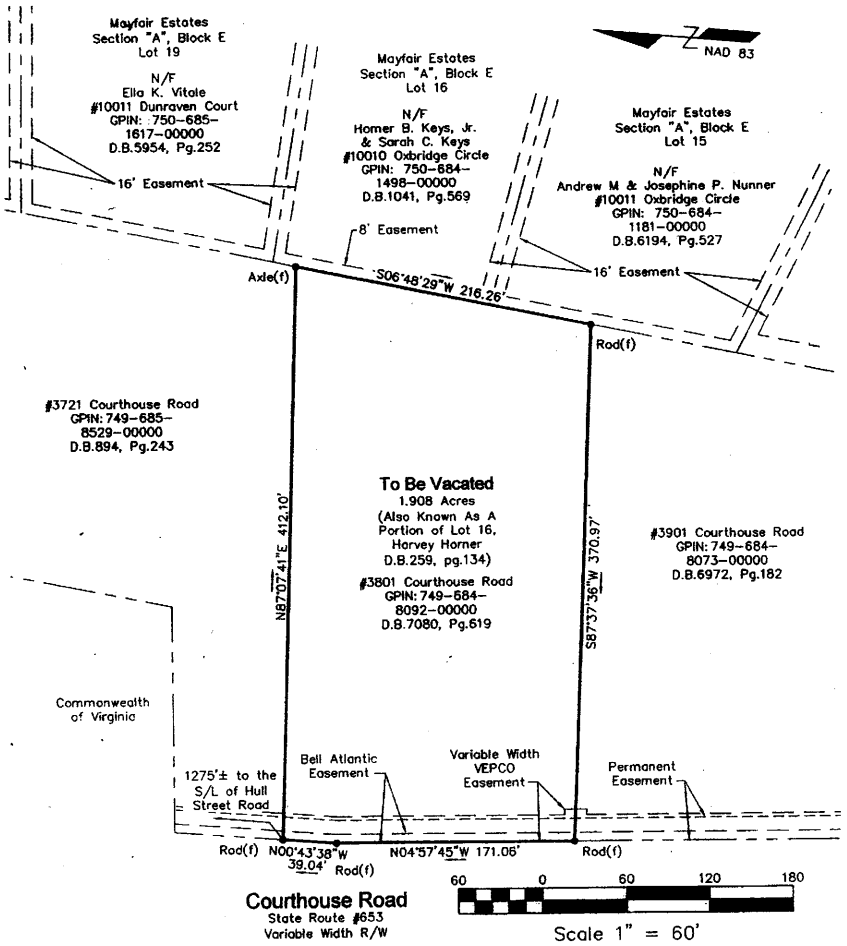
1. PROPERTY SHOWN HEREON IS LOCATED IN ZONE C AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 510035 0052B, EFFECTIVE DATE MARCH 16, 1983.
2. THIS PROPERTY ALSO KNOWN AS PARTS OF LOTS 14 THROUGH 18 "MAP OF LOTS STAKED OUT ON PROPERTY OF HARVEY HORNER"(D.B.259,PG.134) AND PARTS OF LOTS 14 THROUGH 18 "C.H.HORNER PLAN"(D.B.259,PG.134).
4. ADDITIONAL LEGAL REFERENCES:
   D.B.894,PG.246
   STATE HIGHWAY PROJECT #0653-020-274 C-501
5. THIS IS TO CERTIFY THAT AN ACTUAL FIELD SURVEY OF THE PREMISES SHOWN HEREON HAS BEEN PERFORMED, THAT ALL IMPROVEMENTS AND VISIBLE EVIDENCE OF EASEMENTS ARE SHOWN HEREON, AND THAT THERE ARE NO ENCROACHMENTS BY IMPROVEMENTS EITHER FROM ADJOINING PREMISES OR FROM SUBJECT PREMISES OTHER THAN SHOWN HEREON.
6. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO INFORMATION WHICH MAY BE DISCLOSED BY SUCH.

EXEMPT PLAT

THIS PLAT DEPICTS NO CHANGES FROM THE PRESENT COUNTY PROPERTY.

WILLIAM R. KNOOP, LS (VA. REGISTRATION #1876)

COMMONWEALTH OF VIRGINIA
WILLIAM R. KNOOP
No. 1876
9/19/07
LAND SURVEYOR



BDA
BARTHOL DESIGN ASSOCIATES
civil engineering & land surveying
550 Southlake Boulevard, Richmond Virginia 23236
Phone (804) 379-1640 * Fax (804) 379-1752

Plat Showing Vacation of a Portion of Lot 16, "Map of Lots Staked Out on Property of Harvey Horner"

CLOVER HILL MAGISTERIAL DISTRICT
COUNTY OF CHESTERFIELD, VIRGINIA

Date: 9-19-07 Job No.: 06-235-01 Scale: 1"=60'
Sheet 1 of 1

000260

CHESTERFIELD COUNTY
BOARD OF SUPERVISORS
AGENDA

Meeting Date: September 26, 2007 **Item Number:** 17.

Subject:

Adjournment and Notice of Next Scheduled Meeting of the Board of Supervisors

County Administrator's Comments:

County Administrator:

Board Action Requested:

Summary of Information:

Motion of adjournment and notice of the Board of Supervisors meeting to be held on October 24, 2007 at 3:00 p.m. in the Public Meeting Room.

Preparer: Janice Blakley Title: Clerk to the Board

Attachments: ☐ Yes ■ No

000261